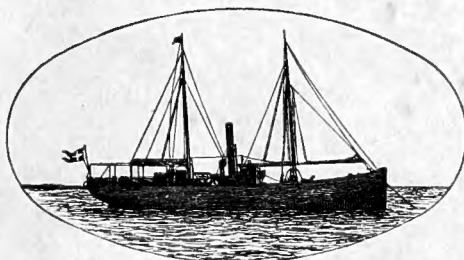


Report
of
The Danish Biological Station
to
The Board of Agriculture.



X.
1899 and 1900.

By
C. G. Joh. Petersen,
Ph. D.

Reprinted from **Fiskeri-Beretningen** for 1900—01.

Kjøbenhavn.
Centraltrykkeriet.
1901.



From

The Danish Biological Station.

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List of The “Aalerusestader” in Denmark

drawn up in the years 1899 and 1900.

With Observations on the Migrations of the Silver Eel, etc.

By

C. G. Joh. Petersen.

(With a Coloured Chart.)

Tabular Statement of the Number of the Traps.

The Eastern Shore of Jutland.

	Traps.
Cape Skagen to Muldbjærgene.....	24
The Limfjord.....	c. 2,600
From Muldbjærgene to Mariagerfjord.....	223
Mariagerfjord.....	124
Randersfjord.....	75
Gjerrild Lighthouse to Sletterhage.....	117
The Fishery of Sletterhage and Kalø-Vig.....	652
The Fishery north of Hou Havn.....	218
The Fishery at Gyllingnæs and the Mouth of Horsensfjord.....	114
The Fishery from Rosenvold to Ashoved.....	240
The Fishery from Trelldenæs to Hejlsminde.....	348
Thunø, Samsø, Vejrø, and Endelave.....	149
	<hr/> 4,884

Funen.

Fyenshoved to Strandskov (the Fishery of Kjerteminde), together with Romsø.....	286
From Strandskov to Skaarupsund together with Vresen (the Fishery of Nyborg and Kongshøj).....	1,526

	Traps.
From Skaarupsund to Nakkebølle (the Fishery of Svendborg) together with the Isle of Taasinge	312
From Nakkebølle to Assens with the Islands of Svelmø, Avernakø, Drejø, Bjørnø, Lyø, Illumø, Thurø, and Thorø (the Fishery of Faaborg)	2,309
From Assens to Stavnshoved together with Bogø, Orø, and Fænø..	389
Odensefjord	137
The north-end of Langeland together with the eastern shore as far as Tranekær	1,019
From Tranekær to the south-end	343
The southwestern shore of Langeland and Ærø	92
	<hr/> 6,413

Zealand.

The Fishery at Refsnæs and in Kallundborgfjord	412
The Fishery on the south-side of Asnæs as far as Voldbjærg	262
Muusholm and Reersø as far as a little south of Drøsselbjærg	964
The Fishery of Korsør from Halskov to Stignæs Forest	365
Stignæs to Agnø Fjord together with the islands of Egholm, Agersø, and Omø (the great Fishery of the southwestern part of Zealand)	3,813
Knudshoved Fishery as far as Masnedsund	543
Nyord, Møen, and Bogø	156
Falster	165
The western shore of Lolland (Rødby Fjord not included)	305
Præstø Fjord to Fakse Havn	28
Fakse to Rødvig	312
Stevns (Kalkgrunden) to Tryggevejle Aa	295
Køge to Kallebo Strand	736
Issefjord	545
Amager	311
Saltholm	132
Vedbæk to Elsinore	1,785
Elsinore to Gildbjærghoved	182
	<hr/> 11,311
Total...	<hr/> 22,608

Add to this, finally, a few traps along the western shore of Jutland, c. 460 traps in Ringkjøbingfjord, and a few in Nissumfjord. There are some traps also in many small enclosed seas, and in fresh water, which are not included in this list.

If we want to count up the traps in larger groups, we may, for instance, arrange them in the following way.

The eastern shore of <i>Jutland</i> from Cape Skagen to Rosenvold with the neighbouring islands.....	1,936	traps.
The <i>Little Belt</i> from Rosenvold to Svendborgsund and the south- end of Langeland	3,450	—
<i>The Great Belt:</i>		
1) Along the shore of Funen	3,174	—
2) Along the shore of Zealand (Smaalandsfarvandet and the western shore of Laaland included).....	6,664	—
The Great Belt, total...		9,838 —
The <i>Sound</i> from Fakse to Gildbjærghoved	3,753	—
The <i>Limfjord</i>	c. 2,600	—
<i>Ringkjøbingfjord</i>	c. 460	—
<i>Odensefjord</i>	137	—
<i>Issefjord</i>	545	—

Detailed List of the "Stader",*)

as also of the number of traps in each of them.

"Aalerusestader"*) along the Eastern shore of Jutland.

Cape Skagen. Traps are said to have been here in former times; at present none are used. *Cape Skagen to Frederikshavn.* No traps are found. *South of the Harbour of Frederikshavn.* 5 "Stader" with 20 traps altogether. This fishery dates from 1897, when the Biological Station was here. *Asaa Rende.* 4 traps. (Stated by a fisherman.) **The Limfjord.** According to statements of the fishermen and official statistics there are c. 400 traps between Aalborg and Hals, including the traps off Hals. Between Aalborg and Løgstor there are c. 600 traps. In the western part of the Limfjord c. 1600. *Hals and Muldbjærgene.* Here the traps are not counted, but presumedly there are none or, at all events, only very few. *Hurup to Fruerlund.* 2, 3, 3 traps. *Fruerlund to Haslevgaard.* 1, 1, 2, 1, 4 traps. *Haslevgaard to Als Church.* 4, 2, 2, 6, 6, 1, 7, 3, 4, 3 traps. *Als Church to Als Sand-bank.* 10, 2, 5, 12, 4, 3, 4, 6, 5, 9, 3, 4, 11, 4, 5, 4, 2, 3, 7, 3, 6, 2, 6, 12, 3, 3 traps, to which, according to the fishermen's statement, 30 side-traps must be added. 10 of these fish silver eels from the south. Otherwise all traps from Hurup to Mariagerfjord and Randersfjord fish yellow eels from the north.

*) Cp. pg. 16.

Mariagerfjord. *The Mouth of Mariagerfjord along the North-side as far as the Lighthouse on Als Odde.* 42 traps which stand 2 and 2 together. *From the Lighthouse to Hollenderkosten.* 2, 1, 1, 1 traps. *Hollenderkost to Hollaenderhage.* 1, 1, 1, 1, 2, 1, 2, 2, 1 traps. *Havne Hage.* 1, 1, 1 traps. *Thygeslund.* 3 traps. (Farther into the fjord there were no traps). The South-side outwards: *Haderup to Hadsund.* 2, 2, 2 traps. *Lystrup Hage to Aistrup.* 3, 3, and 5 single traps. *Aistrup Bugt to Overgaard.* 4, 2 traps. *Overgaard to Als Odde.* 1, 2, 2, 2, 1, 2, 2 traps. *Als Odde to the mouth of the fjord.* 24 traps, which stand 2 and 2. From Mariager to Randersfjord no traps.

Randersfjord. Along the north-side: *Baaken to Mellempeolde.* 16 single traps. *Mellempeolde to Udbyhøj Harbour.* 8 single traps. *Uggelhusene.* 2 traps. *Romalt.* 16 traps, according to statement. The south-side outwards: *Holbækgaard.* 1 trap. *Udby.* 1 trap. *Udbyhøj Lodshuse to Baaken.* 31 single traps.

The Shores of the Cattegat continued. Along the northern shore of Djursland no traps till we reach *Gjerrild Lighthouse.* 2 traps in "Gaard", 2 R. in G.*), 2 R. in G. *Karleby til Fornæs.* 1 R. in G., 5 R. in G., 3 R. in G. *Fornæs Lighthouse to Grenaa Harbour.* 5, 4, 3, 7, all R. in G. *South of Grenaa Harbour.* 10 R. in G. *Havknuden to Rothes Grund.* 1, 2, 3, 1, 3, 3 R. in G. *Off Karlsbjærg.* 2 R. in G. *North of Kobbergaard.* 3 R. in G. *Kobbergaard.* 1 R. in G. *Kobbergaard to Gydehøj.* 2, 4 R. in G. *Hasenøre to Gaasehagen.* 2, 1, 1 R. in G. *Gaasehagen to Sandhagen.* 4, 8, 3, 2, 2 R. in G. *Æbeltoftvig at Lyngsbæk.* 4 R. in G., 8, 6 traps. *Lushage to Sletterhage Lighthouse.* 3, 3, 1 R. in G. *Sletterhage Lighthouse to Stavnsøre.* 2, 2 R. in G., 2 R. in G., outside 5 loose traps, 2 R. in G. 2 R. in G., outside 5 loose traps. 2, 4 R. in G., 2 R. in G., outside 4 loose traps. 4 R. in G., outside 3 loose traps. 1 R. in G., 4 R. in G., outside 7 loose traps. 1, 5, 1 R. in G. 10 loose traps as far as the sand, by single stakes. 1 R. in G., 2 R. in G. and 7 traps. 3, 2, 1 R. in G. 3 R. in G. and 1 trap. 2, 2, 6, 4, 4, 4, 4 R. in G. *Stavnsøre to Kongsgaard Bridge.* 1 R. in G. 2 R. in G. and 3 traps. 4, 9 R. in G. 8 R. in G. and 7 traps. 6 R. in G. 3 R. in G. 4 traps. *Kongsgaard Bridge round the Cove to Rønne.* 6 R. in G. and 2 R. 2 R. in G. and 7 R. 6 R. in G. and 3 R. 4 R. in G. and 10 R. 4 R. in G. and 10 R. 3 R. in G. and 4 R. 4 R. in G. and 3 R. 4 R. in G. and 2 R. 3 R. in G. 4 R. in G. and 3 R. 3 R. in G. and 2 R. 3 R. in G. and 9 R. 3 R. in G. and 6 R. 2 R. in G. and 3 R. 3 R. in G. and 2 R. 2 R. in G. and 2 R. 2, 2, 4 R. in G. 4 R. *Ved Rønne.* 1, 1, 10 traps. *Rønne to Vistofte.* 9, 10, 2 R. 3 R. in G. and 15 R. 10, 5, 1 R. *Vistofte to Tved Mill.* 1 R. 2 R. in G. 2 R. in G. *Tved Mill to Isgaard.* 2 R. in G. and 1 R. 2 R. 2 R. in G. and 2 R. 2, 1 R. 3, 1, 3 R. in G. *Isgaard to Løghøj.* 3, 2, 2 R. in G. 9, 1 R. 2 R. in G. and 6 traps. 1, 2 R. At the head of the above-mentioned "Gaarde" there are generally at least two "Hamme" (eel-traps without a leader); consequently, at least one trap more than we have counted. The loose traps stand, at Helgenæs, by single loose stakes, i. e. 2 for each trap, and have tricing-lines. As a rule they stand in the direction of the "Aalegaarde", but there are intervals between them, as the "Gaard" often does not reach the inner border of the vegetation, where the loose traps begin. *Skjods Hoved.* 4 R. *Skjods Hoved to Nordgrund.* 5 R. *Ost Hoved.* 2, 7, 1, 6, 2 R. *Knebel Vig from Ost Hoved to Tved Church.* 5 R. in G. and 3 R. 3, 2, 4, 2, 3, 2. 4 R. in G. *The north-side of Knebel Vig.* 1, 2, 3, 3, 4, 3 R. *Knebel Vig to Roelse Church.* 9, 3, 5, 6, 3, 5, 2, 1 R. *Roelse Church to the eastern shore east of Rønne.* 4 R. in G. and 7 R. 2, 10, 4, 9 R. 3 R. in G. without bridge and 7 R. 6, 6, 5 R.; here "Flager" are much used. *Rønne.* 2, 1, 1, 2, 2 R. *Kalø East-side.* 3 R. and 1 R. on the north-side in the cove. *Kalø Forest.* 5, 3 R. *Følle Nor to Uggelbølle Hoved.* 2, 2 R. 4 R. in G. and 2 R. 4 R. in G. 2 R. 1 R. 4, 4, 4 R. in G. 4 R.

*) R. in G., in this list, means trap in "Aalegaard". R. ("Ruse")=trap. G. ("Gaard")=yard.

in G. and 1 R. *Uggelbølle Hoved to Vosnæs.* 1, 1, 3, 3 R. *Studstrup to Skevringe* 1, 1, 1, 3 R. *Kyssing Hage N E point to Kyssing Mill.* 10, 10, 10, 15, 3, 9, 1, 1 R. *Kyssing Mill to Saxild Church.* 5 R. 2, 2, 2 R. in G. 2, 1 R. 1 R. in G. 1 R. 2 R. in G. *Saxild Church to Dyngby Hoved.* 1, 1 R. 2 R. in G. 4, 2, 2, 4, 1, 2, 1, 2, 1 R. *Dyngby Hoved to the Ferry.* 2, 1, 1, 1, 3, 14, 1, 1, 12 R. *The Ferry to Hou Harbour.* 1, 1, 1, 5, 1, 2, 1, 4, 7, 10, 4, 15, 4, 15, 1, 7, 1 R. *West of Hou Harbour.* 1, 1 R. No traps before Gyllingnæs. *The south-side of Gyllingnæs to the bridge.* 11, 7, 12, 12 R. *Hjarnø SE side.* 4, 4, 3, 2 R. *Næbet.* 6 single R. *Næbet to the Church.* 5 single R. *The Church along the Westside of Hjarnø.* 1, 1, 1, 1, 1, 4, 1, 1, 1, 1, 1, 1 R. — *Alrø. Jægehoved to the broom NW of the same.* 2, 1, 1, 1, 3, 3, 5, 6 R. *Hesteodde to Snaptun.* 1, 1, 1 R. *Snaptun to Hundshage.* 5 single R. *Sonderby Forest.* 3 R. North of Ashoved no traps. *South of the Ashoved Forest* 8, 6, 6, 5, 5, 5, 7 R. *Juelsminde Harbour to Bjørnsknude.* 3 R. 2, 3 R. in G. 2 R. in G. and 3 R. 3 R. in G. *The point of Bjørnsknude to Klakring Forest.* 3, 2, 1 R. in G. 2 R. in G. and 1 R. 3 R. in G. and 1 R. 3 R. in G. and 1 R. 3, 2 R. in G. 4 R. in G. and 6 R. 2 R. 1 R. in G. 3 R. in G. and 1 R. 3, 3 R. in G. 2 R. 2 R. in G. and 1 R. 1 R. in G. and 1 R. 1 R. in G. and 7 R. 2 R. in G. and 12 R. 2 R. in G. and 7 R. 2 R. in G. and 5 R. 2, 2, 2, 3, 2, 2, 1 R. in G. 3 R. 1 R. in G. 4 R. in G. and 1 R. 2, 2 R. in G. 2 R. in G. and 1 R. 3 R. in G. and 1 R. 3 R. in G. and 4 R. *Klakring Forest to Barrit Forest.* 2, 1, 1, 3, 3, 2, 3, 2, 2 R. in G. *Barrit Forest to Rosenvold.* 3, 1, 4, 2 R. in G. 3 R. in G. and 1 R. 3, 4, 2, 5 R. i G. All the "Gaarde" built of thick stakes with "Flager". *From Trelde Forest and southwards.* Here begin the large Little Belt traps, sometimes with smaller traps outside ("Kasteruser"). 3, 2, 4, 3, 2, 1 large traps. 3 large R. and 7 "Kasteruser". 4, 3, 3 large R. 3 large R. and 7 "Kasteruser", 4 large R. *North of Fredericia.* 3, 3 large R. *Fredericia to Odden.* 1, 1, 2, 2, 2, 3, 2, 2, 3, 2, 1, 1, 1 large R. *Lyngsodde to the Ferry.* 2, 2, 2, 2, 2, 1 large R. *The Ferry to the Cove.* 2, 1, 2, 2, 2, 1, 1, 2 large R. *The Cove to Damgaards Mill.* 1, 1, 2, 2, 2, 2, 1 large R. *Damgaards Mill to Odden.* 2, 2, 2, 2, 2, 2, 2 large R. *West of Odden at Skærbæk.* 6, 14 "Kasteruser". *Along Stenderup.* 1, 2 "Kasteruser". 1, 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 2, 2 large R. 3, 4 R. *The broom at Stenderup Hage.* 18, 2, 15, 40, 1, 3, 16, 16, 15 R. *At Skibelund.* 8 R. *Under Trappendal Forest.* 12, 22, 3 R.

Thuno. *The southwest-side.* 1, 1, 2, 1, 1, 1, 1, 1 R. i G. *The southeast-side.* 2, 1 R. i G. *The Bridge.* 1, 1 R. i G. On the east-side they fish from the south, on the west-side now from the south now from NW.

Samsø. *From the north-point west of Samsø.* *Issehoved to Koldsøre Hage.* 2 R. in G. 3 R. *Koldsøre Hage to Asmørhage.* 2, 3, 4, 3, 3, 2, 3, 3 R. in G. 4 R. 3, 2, 3, 2 R. in G. 10 R. 2 R. in G. *Asmørhage to Maarup Harbour.* 2 R. in G. 11 R. *Southeast of the Harbour.* 5 R. 2 R. in G. *Off Ringehjerger.* 1, 2, 1 R. in G. All the "Aalegaarde" on the west-side of Samsø have tricing-lines. *Vestborg Lighthouse to Brattingsborg Forest.* 1 R. in G. 1 R. *Jettehøj to Ljushage.* 3, 3 R. in G. *Ljushage to Ballerhage.* 5 R. in G. 5, 4 R. *Staalhojshage.* 16 R. *At the south-side of Vejro.* 6 R.

Endelave. *South of the island.* 2, 1, 2, 2, 2, 2, 2 R. in G.

Funen.

From Fyenshoved east and southwards. *Sabbesborg to Snare.* 1 R. in G. 2 R. *Snare to Bøgehjærggaard.* 4, 3, 2, 2, 1 R. in G. *Off Bøgehjærggaard.* 2, 1 R. in G. *Bøgehjærg Hage to Stavreshoved.* 4, 12, 5, 2, 8, 1, 2, 7, 7, 4, 2, 5, 5, 7, 5, 4,

6, 5, 3, 3, 2, 6, 4, 4, 7, 1, 2 R. *Off Stavreshoved*. 8, 8, 7, 7, 8 R. *Stavreshoved to Hverringe Forest* 7, 8, 8, 6 R. *Hverringe Forest to the Mill*. 7, 8, 3, 10, 10, 1 R. *East of Kjertemünde Harbour*. 3 R. *Off Risingehoved*. 2 R. *Off Strandskov*. 15, 7 R. *Off Teglgaardsskov*. 3 R. *South of Teglgaardsskov*. 4, 3 R. *Off Christianslund Forest*. 2, 4, 8, 6, 10 R. *Off Slipshavn Forest*. 11, 7, 7 R. *Knudshoved to the point of Slipshavn*. 3, 6, 8, 12, 21, 12, 6, 10, 11, 5, 5, 3, 3, 1 R. *The point of Slipshavn to Slipshavn Harbour*. 8, 5, 4 R. *From the Harbour round the shore up towards Lindholm*. 1, 6, 3, 4, 1, 7, 4, 4, 14, 8, 16, 5, 3, 2 R. *On Lindholmen*. 3, 3, 7 R. *Lindholm towards the Town*. 6, 9, 3, 8, 7, 4, 3, 4, 3, 3 R. *Off Dyrehave Mill*. 3, 2, 2, 9, 3 R. *Off Holckenhavn Redout*. 12, 11, 4, 3 R. *Kajberg Forest*. 12, 8 R. *Off Maemosegrund*. 14, 4 R. *Kloverhage to Kongshøj*. 4, 16, 16, 7, 10, 12, 7, 13, 34, 1, 25, 16, 12, 7, 8, 6, 3 R. *Kongshøj to Lundeborg*. 38, 35, 30, 8, 31, 6, 2, 11, 36, 12, 9, 13, 50, 4, 11, 56, 7, 31, 7, 9, 21, 20, 40, 14, 33, 48, 10, 11, 16, 9 R. The traps stood nearly all between Kongshøj and Stokkebæk. *Off Knarreberg Mill*. 15 R. *Knarreberg Mill to Elsehoved*. 31, 24 R. *Elsehoved southwards*. 12, 3, 8, 25 R. *The rivulet south of Tidselholt*. 30 R. *Aslushage to Skaarup Sound*. 7, 21, 19, 6, 11, 12 R. At Aslushage they commence with 4 stakes. Northwards there are only 2 stakes for each trap. *East of Svendborg*. 2, 2, 2, 2, 2, 2 R. *Svendborg to Paulinelund*. 5, 3, 2, 2, 2, 2, 2, 2 R. *Paulinelund to the east-end of Lehuskov*. 2, 2, 3, 2, 3, 3, 2, 4, 4, 3, 1, 1 R. *Off the point of Lehuskov*. 2, 1, 1, 3, 4, 5 R. *Lehuskov to east of Skerninge rivulet*. 4, 3, 2, 2, 3, 5, 3, 2, 2, 3, 9, 6, 3, 3, 3, 2 R. *Skerninge rivulet to Ringgaards Hage*. 4, 10, 2, 2, 7, 3, 4, 4, 4, R. *Off Ringgaard*. 3, 3, 4 R. *Towards Nakkebolle*. 4 small "Stader". *Off Nab*. 2, 1, 3, 3, 2 R. *Off Hanse Odde*. 3, 2, 3, 2 R. *The northwest-side of Faaborgfjord*. 2, 2, 2, 2, 2 R. *The southwest-side of Faaborgfjord*. 1, 5, 4, 2, 6, 2, 8, 7, 2, 1, 2, 2, 3 R. *East of Knolden*. 1, 3, 9, 6, 21 R. *South of Knolden*. 17, 8, 24, 8, 13, 17, 18, 10, 15, 22, 19, 23, 13, 3, 4, 8, 2, 1, 5 R. *West of Knolden along the tongue to Sinebjerg Forest*. 9, 7, 7, 14, 10, 1, 14, 11, 7, 1, 4, 5 R. *Along Sinebjerg Forest*. 3, 4, 2, 4, 5, 5, 1, 7, 3, 13, 7 R. *Sinebjerg Forest to south of Lergaarde*. 6, 8, 5, 14, 6, 2, several of these have the inmost traps in "Gaard". 1, 9, 17, 10, 6, 4 R. 8, the inmost in G. 4 R. 8, the inmost in G. 4, 10 R. 11, 2, 6, the inmost in G. 3 R. 12, the inmost in G. 3 R. *Lergaarde to the Southern point of Hornøes*. 7, the inmost in G. 7 R. 7, 9, 15, 8, the inmost in G. 9 R. 8, the inmost in G. 12 R. 16, 23, 10, the inmost in G. 6 loose traps. 11, 5, the inmost in G. 3 loose R. 14, 5, the inmost in G. 8 R. 2 in G. 14, 15, 15, 9, 11, 12, the inmost in G. 5 R. 9, 7, 12, 6, the inmost in G. 3 loose R. 3, 1 R. in G. 13 R. 1 R. in G. 7, 5, the inmost in G. 1 R. in G. 4 loose R. 1 R. in G. 14, the inmost in G. 1, 1 R. in G. 14 loose R. 1 R. in G. 17, the inmost in G. 1, 1, 1 R. in G. *The southern point of Hornøes to the western point off Hornøes*. 3, 3 R. in G. 3 R. in G. and 3 R. 2 R. in G. 3, 3 R. 20, 15, 9, the inmost in G. 5 R. 10, 15, the inmost in G. *The western point of Hornøes to the mouth of Kalvor*. 6, the inmost in G. 2 in G. 7, 6, 6, 12, 16, 7, 11, 11, the inmost in G. 2 R. in G. *The mouth of Kalvor to the custom-house*. 1, 1 R. in G. 8, 18, 10, 11, the inmost in G. Within the custom-house there are two small "Stader". *The east-side of Helnæs to the southern point*. 5 R. 12, 8, 6, 9, 2, 7, the inmost in G. 3 R. 20, the inmost in G. 9 R. 12, 12, 10, 23, 5, 2, 3, the inmost in G. 18 R. 2 R. in G. 8 R. without arms, prepared with linseed-oil. 2, 4 R. in G. *The southern point of Helnæs to the point at Leho*. 4, 4 R. in G. 7 R. 3, 4, 4, 3 R. in G. 8, 8, the inmost in G. *The point at Leho and northwards*. 8, 2, 16, the inmost in G. 1, 1, 1, 1 R. in G. *Langensbo Huk*. 1 R. 1 R. in G. *At Avernæs*. 3 "Gaarde" with 1 or 2 traps. *East of Sønderby Bjerge*. 8 R. *Along Sønderby Bjerge*. 3, the inmost in G. 6, 5, 5, 8, 2, 17 R. *South of Thorø Huse*. 16 R. *Assens*,

West of Aborg. 8 R. *The beacon to Emdekær Nor.* 15, 8 R. *Wedellsborg to the point of Ivernes.* 7, 9, 12, 14, 10, 20, 3 R. *On the southern shore of Aalehoved.* 2, 26, 7 R. *At Tomneshage towards Sparretovn.* 22, 12, 4 R. *In the Bay.* 8 R. *Along Fons Forest.* 28, 1, 25, 12 R. *Past Hagen.* 3 large R. 2 R. 1, 1, 2 large R. 2 R. 1, 2 large R. *In Gamborg Fjord.* 3 R. *The boat-builder's yard to Teglgaard.* 4, 8 R. *Teglgaard to Gammel Slot.* 4, 1, 2, 1, 2, 1 large R. *Middelfart to Strib.* 1, 6, 4, 4, 2, 3, 1 R. *Strib to Starreshoved along Bogeklint.* 2, 2, 3, 3, 4, 1, 2, 1 R. *Along the north-side of Funen no traps till we reach Odense Fjord.* *Outside the juniper-grove to Hals Lighthouse.* 1, 1, 1, 2, 2 R. *The bridge of the Lighthouse to the juniper-grove up the Fjord.* 1, 2, 1, 2, 1, 1, 1, 1 R. *South of Martinegaard.* 1, 2 R. *In Egense Deep.* 12 single R. *At Gerso.* 1, 1 R. *At Dorholm.* 1 R. *Klintbjerg.* 1 R. *Hasselo (the SE corner).* 1, 2 R. *Hasselo Kvissel.* 11 R. *Lumby Kvissel.* 11 R. *Seden Kvissel.* C. 20 R. *Haardehage.* 1 R. *From the southwest-side to the northern point of Vikkelso.* 1, 1, 1, 2, 1 R. *The east-side of Vikkelso.* 1, 2, 1, 1, 2, 1, 1 R. *The west-side of Feds Odde.* 2, 3, 1, 2 R. *Sorteo between the two straw beacons.* 1, 1, 1 R. *From Midskorby to the Forest.* 1, 1, 1, 4, 2, 3, 2, 2, 2, 2, 2, 1, 3, 1, 1 R.

The Islands around Funen.

Romsø. *The south-side.* 6, 6 traps.

Vresen. *The east-side.* 3, 7, 11, 40 traps.

Langeland. *The west-side.* *Frankeklint to the Lighthouse.* 4, 1 R. *The Lighthouse to Lohals Harbour.* 1, 11, 4, 1, 4, 1 R. *Lohals Harbour to Stoense Channel.* 4, 10, 3, 6, 6, 2, 3, 2 R. *The east-side.* *North of the Lighthouse at Charlottenlund.* 26, 8, 5, 3, 6, 2 R. *The Lighthouse to Snøde Ore.* 3, 22, 16, 20, 6, 2, 9, 6, 20, 38, 2, 17, 40, 8, 26, 6, 26, 39, 4, 17, 6, 16, 32, 24 R. *Snøde Ore to Tressebølle Forest.* 37, 4, 5, 10, 2, 3, 7, 7, 3, 1, 3, 17, 15 R. *Tressebølle Forest to Tranekær Lighthouse.* 2, 25, 1, 11, 15, 15, 38, 16, 31, 1, 32, 13, 6, 33, 26, 6, 4, 2, 24, 3, 8, 3, 10, 3, 2, 12, 8 R. *Outside the Lighthouse at Tranekær.* 12, 12, 10, 3 R. *Stengode Forest to Spodsbjerg Bridge.* 20, 30, 16 R. *Spodsbjerg Bridge to the south-end of Nebbehuse Forest.* 4, 7, 3, 4, 10, 3, 1, 4, 3, 2, 1, 3, 2, 4, 3, 2, 6 R. *The south-end of Nebbehuse Forest to Hjortholm Forest.* 5, 5, 3, 4, 4, 7, 12, 2, 3, 5, 9, 5, 4, 36, 6, 4, 7, 1, 3, 10, 4, 2, 2, 12, 3 R. *Hjortholm Forest and southwards.* 12, 3, 4, 18, 2, 10, 2, 3 R. *Nordenbogaard to the Lighthouse.* 3 R. *All the traps stand by 2 and 2 stakes.* *Along the south-end of Langeland no traps, nor any at Bagenkop.* *East of Ristinge Klint.* 5 small "Aalegaarde". *Along Klinten.* 10 small "Aalegaarde".

Thuro. *The south-side.* *On the Reef.* 4 R. *Along the shore to Grønneodde.* 6, 10, 2, 5, 5, 10, 6, 4, 5, 8, 9 R. *On the west-side from Grønneodde and northwards.* 1, 1, 1, 4, 5, 7, 8 R. *At Holmen.* 5 R. *Off Maarodde.* 1, 3 R.

Taasinge. *East of Stenodden.* 9 R. *Off Troense.* 3, 3 R. *North of Troense.* 2, 2 R. *Oerne and westwards to the Ferry.* 2, 2, 2, 2 R. *The Ferry to Iholm.* 2, 2, 1, 1, 2, 2, 1, 2, 3, 2, 1, 2, 2, 3, 2, 1, 1, 2, 2, 2, 2, 1, 3 R. *The south-side of Iholm.* 4, 1, 3, 2 R. *North of Bakkehøvegaard.* 2, 11, 4, 3 R. *Off Vornes Forest.* 2, 7, 9, 2, 4 R.

Svelmø. *The south-side.* 2, 2, 10, 6, 1, 7, 7 R.

Bjørnø. *The north-side of Holmene.* 3 R. *The south-side of Holmene.* 9 R. *The south-side of Bjørnø.* 5, 9, 3, 2, 1, 1, 8, 4, 13, 10, 5, 3, 3 R.

Avernakø. *The northwest-side.* 5, 8, 3, 9 R. *Southwest to Stenhøje.* 1, 1, 1, 2, 1, 1, 6, 4, 15, 9, 6, 10, 6, 14 traps and single "Gaarde". *Stenhøje to Drejehusene.* 4, 1, 1, 2, 12, 17, 18, 5, 21 R. *On the north-side where the water goes over Drejet.* 4, 3 R. *The northeast-side.* 5, 11, 3 R. *From Drejet along the south-side of Korshavn.* 2, 3, 1, 3, 1, 1, 1 R.

Drejo. *Around the west-end, from north of the Forest to south of the same.* 5, 6, 2, 3, 6, 4, 4, 9, 10, 10, 12 R. *East of the Bay.* 10 R. *South of the Church.* 1, 1 R. *On the south-point.* 11 R. *East of the same.* 3 R.

Lyø. *From northeast to southwest Hagen.* Almost all "Aalegaarde" 1, 1, 2, 2, 1, 2, 1, 5, 1, 5, 4, 8 and 5 R. outside the Sand-banks; 5, 1, 6, 3 and 10 outside the Sand-banks 1, 1, 1, 3, 1, 1, 1, 1, 1, 1. *Along the west-side.* 1, 1, 1, 2, 4, 2, 5, 3, 3, 3, 1, 4, 1, 2, 2, 2, 2 R. in G. *On the northwest-side.* 1, 1 R. in G.

Ærø. *South of Ærøshale.* 3, 15, 12 R. *Under Trappeskov.* 10 R. *Along the west-side from Kongshøj to Dalen.* 10 "Gaarde" with 1 trap in each. *From Dalen to Kirkebæk at Breininge.* 14 "Gaarde" with 1 trap in each. *From Kirkebæk to Vorbjerg.* 9 "Gaarde" with 1 trap in each. *East of Skjoldnæs Lighthouse in the little Bay.* 2, 2 R.

Illumø. *On the north-side of the west-end of the island.* 5, 6, 7 R.

Thorø. *Along the southwest-side of the island.* 8, 8, 10, 6 R.

Græsholm Baake at Oro. *East of this place.* 12 R.

Bogø. *The southern shore, at the Lighthouse.* 8 R. *The eastern shore.* 4, 5 R.

Brandso. No R.

Fænø. *Around the island.* 5, 3, 1, 1, 1, 2 large traps. 6 "Kasteruser".

Fænø Kalv. 2 large traps.

Æbelø. No traps.

Sprogø. No traps.

Zealand.

Refsnæs to Ulstrup Mill. 8, 16, 10, 2, 4 R. 4 R. in G. and 16 R. 5, 5 R. 3 R. in G. and 17 R. 6 R. 2 R. in G. and 2 R. 1 R. in G. and 9 R. 1 R. in G. 5 R. in G. and 11 R. 12 R. 2 R. in G. and 1 R. 14, 1 R. 2 R. in G. and 10 R. 3 R. in G. and 9 R. 2, 1 R. 1 R. in G. and 12 R. 3 loose traps. 2, 12, 3 R. 2 R. in G. and 7 R. *Ulstrup Mill to Kongstrup.* 1, 10, 2, 15, 2, 14, 1, 14, 5, 14, 14, 4, 5 R. 1 R. in G. and 11 R. 12, 4, 10, 16 R. *Kongstrup to the Hospital.* 3 R. in G. and 2 R. 2 R. in G. and 1 R. 2, 1, 2, 4 R. We are told that they go out with the traps only as far as 4, at most 5, fathoms. Traps from the Sound have been tried on deeper water, but they gave next to nothing. The traps all fish from the east. Most commonly they have but one arm, the western one being in continuation of the leader, which has often one or two shores. The fore-bows are half-round, with a chain under the leaders. In the deepest traps they often use only two stakes in all, there being no eastern arm but a line to support it instead. *Hedvigsløst to Forskov on the north-side of Asnæs.* 2 R. 3 R. in G. 5, 1, 3 R. *On the westend of Asnæs.* 6 R. in G. and 8 R. 11 R. 5 R. in G. and 17 R. *Along Vesterskov.* 4 R. in G. and 20 R. 5 R. in G. and 8 R. 15 R. 5 R. in G. 4 R. in G. and 22 R. *Along Forskoven.* 5 R. in G. and 10 R. 6 R. in G. and 10 R. 5 R. in G. and 12 R. 4 R. in G. and 10 R. *From Forskoven to Voldbjerg.* 2 R. in G. and 13 R. 7 R. 3 R. in G. and 16 R. 2 R. in G. 14, 9, 4 R. *The northwest-side of Reersø.* 3 R. in G. and 6 R. 1 R. in G. and 6 R. 6 R. 2 R. in G. and 5 R. 2, 5, 6 R. 1 R. in G. and 4 R. 6 R. On the dry stone in SW 10 R., in SE 7 R. *The south-side of Reersø to Reersø Town.* 14, 16, 15, 23 R. 2 R. in G. 30, 15 R. 2 R. in G. and 18 R. 9, 22, 10, 12, 38, 35, 50, 36, 27, 45, 70, 38, 15, 25, 13, 19, 12, 12, 12, 8 R. *Under Dalby Banks to Mullerup Harbour.* 10, 3, 4, 1, 1, 30, 28, 20, 15 R. *Mullerup Harbour to Drøsselbjerg.* 7, 8, 5 R. *Drøsselbjerg to Lyngen.* 5, 10, 5, 5, 11, 14 R. The fishermen tell us that there are people still alive, who remember how this fishery at Reersø has been developed from using the old-fashioned "Aalegaarde" only, to its present state, with as many as 70 traps in one "Stade". The fishermen are of

opinion that they get as much in each trap now, as when there were many fewer traps. *Halskov Reef on the south-side.* 11, 3, 12, 11, 10 R. *North of Rebbes Klint.* 11 R. *From Korsør Town southwards to Alehoj.* 30, 3, 34 R. *Alehoj to Korsør Forest.* 30 R. *Korsør Forest to Klar Forest.* 38, 32, 36 R. *Klar Forest to Espe.* 3, 34, 17, 24, 18, 4 R. *Off Trolldhoj.* 3 R. *North of Stigsnes Forest.* 1 R. *Along Stigsnes Forest* 11, 19, 17, 12, 21, 25, 8 R. *Southwards.* 26, 15, 16, 17, 16, 4 R. *The fisherman's hut at Klinteberg.* 1, 16, 4 loose R., 21, 24, 2, 1 R. *The Corner of Klinten.* 31, 3, 4, 28, 5, 24, 3 R. *Trefavnekrogen to Sevedogaard.* 48 R. 16 and 18 loose R. 70, 75, 42, 36, 7 R. *Sevedogaard to Næbet.* 1, 6, 14, 4, 4, 4, 18, 12, 10, 3, 1 R. *Næbet to Hagen.* 4, 5, 2, 3, 3, 4, 3, 3, 4, 4, 4, 7, 2, 1, 1, 6, 3, 22, 2, 5, 3, 3, 2, 1, 6, 2, 7, 42, 8, 37, 7, 6, 1, 3 R. *Hagen to the Cutting.* 5, 76, 3, 50, 2, 38, 2, 48, 9, 5, 52, 4, 7, 20, 11 R. *The Cutting to Glæno.* 3, 30, 29, 12 R. *Glæno to Bisserup.* 2, 86, 3, 11, 3, 57, 95, 3, 6, 2, 2, 8, 11, 30, 8, 3, 1, 4, 30 R. (The 4 feet stone) 31 loose traps. 40, 5, 3, 1 R. 19 loose traps. 55, 2, 1, 1, 35, 23, 1, 10 2 R. 16 loose traps. 24, 3, 25, 1, 2, 5, 24, 19 R. 28 loose traps. *On the sandy tongue out from land.* 9, 10, 5, 5, 21, 9, 30, 35 R. *On the southeast-end.* 20 R. *Before the spruce-forest.* 13, 1, 62, 17, 23, 19 R. *Along the spruce-forest.* 3, 28, 50, 4, 12, 3, 21, 4, 3, 38, 2, 1, 1, 24 R. *From the Forest to Gumperup Klint.* 26, 1, 4, 48 R. *Gumperup Klint to Gumperup Town.* 9, 2, 3, 9, 5, 7, 3, 5, 7, 1, 7, 4, 8, 5 R. *South of Gumperup Town to Karrebæk Forest.* 4 loose traps. 19, 1, 5, 2, 1, 22, 4, 12, 4, 5, 1, 2, 1, 10 R. *Karrebæk Forest to Karrebæksmide.* 1, 6, 8, 4, 5, 2, 2, 44, 1, 1, 41, 13, 2, 3, 8, 4, 20, 4, 2 R. *At Enø Klint.* 5, 24, 3, 1, 4, 2, 4, 2, 1 R. *At the mouth of Dybso Fjord.* 2 R. (according to the fishermen's statement). *In Agnø Fjord.* C. 100 R. (according to the fishermen's statement). *On the northwest point of Knudshoved.* 5 R. *On the southwest point to Draget.* 29, 11, 10, 2, 3, 16, 13, 11, 9, 22, 4, 2, 24, 7, 15, 1, 10 R. *Draget to the midst of Knudskov.* 1, 1, 7, 11, 6, 21, 3, 14, 1, 2, 1 R. *From the midst of Knudskov to the east-end of the same.* 4, 5, 5, 1, 8, 1, 2 R. *The east-end of Knudskov to Oreby Forest.* 2, 2, 1, 1, 2, 12, 1, 1, 4, 12, 33, 11, 1, 3, 4, 12, 25, 3, 14 R. *Oreby Forest to Masnedsund.* 3, 1, 25, 1, 5, 1, 1, 2, 1, 1, 1, 12, 1, 1, 3, 4, 5, 2, 2, 3, 2, 11, 2, 3, 14, 2, 1, 1 R. *From Masnedsund through Bøgestrømmen to Præstø* no traps on the coast of Zealand. *At Nyord.* *From the bridge round the corner into Ulfshaleløbet.* 34 single traps. *In Ulfshaleløbet on the Møen-Side* 8 single traps (according to the fishermen's statement). *In Præstøfjord at Nyso Forest.* 3, 2, 2, 1 R. (according to the fishermen's statement). *From Strandegaard to the Forest north of this place.* 4, 2, 1, 3, 1, 1, 2, 1, 1, 1, 2, 1 R. *At Faxe Harbour.* 24 R. These traps are "Klodsruuser", like all the rest as far as Rodvig Harbour. *At Siberien.* 6 R. *From little Thoroje* they fish with 52 traps in irregular "Stader" east of Faxe Strandskov. *From Lunde* they fish with 152 traps in irregular "Stader" from the forest east of Lunde to west of Lunde Town. *At Højstrup.* 8, 8, 8, 8 R. *At Felskov Reef.* 7, 3 R. Here they can place 50 more traps, if the herring-fishery is poor. *West of Rodvig Harbour.* 1, 6 R. *From Rodvig Harbour to the point off Boesdal.* 9, 4, 5, 5, 6 R. ("Klodsruuser"). *From Kalkgrunden to Kjøge Sonakke.* 22, 10, 7, 3, 8, 31, 10, 20, 7, 7, 3, 11, 5, 8 R. A few "Klodsruuser"; otherwise by stakes (according to the fishermen's statement). *From the Reef north off Kjøge Søhuse to Strobby.* 10, 2, 2, 2, 5, 10, 6, 6, 2, 7, 14, 8, 22, 4, 6, 2, 2, 7 R. *From Strobby to Tryggevejle Rivulet.* 1, 1, 1, 3, 20 R. *From Kagstrup north of Kjøge to Kjøge Inn.* 20, 30, 25, 30, 8, 35, 20, 10, 31, 46, 16, 40 R. *From Kjøge Inn to Jægerkroen.* 20 R. *Jægerkroen to Avedøre Holme.* 20, 40, 40, 35, 25, 40, 30, 30, 30, 115 R. These traps stand by 3 "Klodsbojer" with stones; in the long "Stade", however, there were 50 by stakes. On the coast of Zealand we do not meet any traps now till we reach Vedbæk. Here are 11 R. by buoys. *At Rungsted.* 20 R. by buoys. *From Sofieberg to Sletten (the Forest).* 60, 76, 88, 20, 20 R. The traps commence

here far away from land, much farther out than we see them in the Great and the Little Belt. *From Sletten (the forest) to Humlebæk.* 108, 88, 82 R. *From Humlebæk to Tipperup Mill.* 75, 75, 70 R. *Tipperup Mill to Skotterup.* 90, 62, 60, 31, 44, 50, 36, 39, 16, 7, 38 R. *Skotterup to north of Snekkersten Inn.* 49, 70, 9, 60, 57, 3, 7, 20, 40, 9, 20, 6, 14, 10, 10, 10, 10, 4, 3, 5, 4, 4, 5, 4 R. *Snekkersten Inn to Elsinore Harbour.* 4, 6, 5, 5, 5, 4, 5, 9, 6, 7, 2, 6, 7, 5, 4, 3, 2 R. *Within Lappegrunden.* 23 traps, but they had been washed ashore by the sea; they stand 1 and 2 in each set. *Julebæk to Aalsgaarde.* 2, 1, 2, 4 single R., 2, 10 single R., outside the sand-banks 3 single R., 15 single R. *Aalsgaarde to Odinshøj.* 19 single R., 2, 1, 1, 1, 2, 2, 1, 1, 2, 1, 1 R. *At Odinshøj.* 24 single traps, moreover 52 R. to *Hornbæk Harbour*; they stand 1 and 2 in each set, only two sets have 6 in each; there are stakes by one of these sets, otherwise "Klodsruiser" are commonly used in the Sound. *At Gilleleje* they use altogether only 10 traps (according to the statement of the fishermen). *From Gilleleje to Refsnæs* there are scarcely any traps, except in the Issefjord.

Issefjord. *From Frederikssund Bridge to Store Rorbæk.* 2, 3, 4, 3, 2 R. *The west-side of Eskildsø.* 1, 1, 1, 1, 1, 1 R. *The west-side of the Fjord. Øst Skov,* from the southern point to the northern end. 1, 1, 3, 2, 1, 1 R. *At Langore.* 1, 1, 1 R. *At Horse-Hage.* 1, 1, 1, 1 R. *Svinholm Hills* (the point off Skuldelev). 1, 1, 1, 2 R. *Kjølholm,* the west-side 3 R., the east-side 2 R. *From the southern border of Færgelunden to Frederikssund Bridge.* 4, 2, 6, 1, 3, 2 R. *From the Bridge to Kitnes.* 1, 1, 1, 2, 1, 1 R. *Kulhusrenden, Langotes Hage.* (From the 5 ft. beacon to the western beacon). 31 single R. *The west-side of Kulhusbro.* 5, 2 R. *From Frederikssund Bridge to Klinten.* 1, 1, 2, 2 R. *Kulhusrenden from Grønnæsseshage to Solagerhuse.* 2, 3, 2, 2, 1, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 2 R. *Lynæs Harbour.* (East of the same in the bay.) 1, 2, 1, 1, 2, 1, 14 R. *On Lynæs Sand.* 1, 1, 3, 1, 1, 1, 1, 1 R. *Between Lynæs and Handedst.* 1, 1 R. (as a rule 5 single R.). *Issefjord proper.* *From between Korshage and Skanshage to the Cholera Hospital.* 1, 1, 1, 1, 1, 1, 2, 1, 2, 1, 1, 1 R. *From the Cholera Hospital to Skanshage.* 1, 1, 1, 1, 1, 1, 1, 1, 1, 1 R. On this whole coast (according to the fishermen's statement) 30 R. will be added. *From Skanshage to Rørvig Bridge.* 61 single R. 2, 2, 6, 2 R. *From Rørvig Bridge to Skredbjærg.* 3, 2, 4, 3, 1, 3, 3, 3, 1, 2, 1, 2, 3, 3 R. *At Nakkehoved.* 5, 1 R. *At Rønne.* 4, 6, 3 R. *At Slettenebbe.* 3, 3, 3 R. *At Nykjøbing Harbour.* 2 R. *From the north-end of Kongsøre Forest to Kongsørenebbe.* 2, 1, 3, 2, 1, 1, 2, 1, 1, 12, 1, 1, 1, 1, 2, 2, 1, 1, 2, 1, 1 R. *At Bøgehoved.* 1, 2, 1 R. *The south-side of Egenæsshage.* 2, 1, 4, 2, 1 R. *Kisserups Hage.* 12 single R. (Here stakes only were found). *At the east-side af Svovlsbjærg.* 1, 1, 1, 1 R. *At Hønselhalsen.* 1, 1, 1, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1 R. *On Bogenæs.* 3, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 3, 4, 2 R. *In Holbækfjord.* No eel-traps. *From Søminebroen to the south-end of Dragerupskov.* 1, 1, 1, 2 R. *On the south-side of Hammeren.* 1, 1, 1, 1, 1, 1, 1, 1, 1 R. *Skallehagen* (off Allingebybjerg). 10 single R. *At Rendeby FERRY.* 1, 1, 1, 1 R. *On Ourø, Hagen south of Snabefærge.* 1, 1, 1, 1 R. *From Østerfærge to Lindholm.* 10 single R. *The south-side of Ronø.* 1, 1, 1 R. (according to the fishermen's statement). *From Bybjerg Bridge to Ibenør.* 33 single R.

The Islands around Zealand.

Amager. *From Kongelunden to Alandskage.* 33, 20, 37, 38, 33 R. On the south-side south of Dragør c. 100 R. (according to statement). Between Dragør and Kastrup c. 50 R. (according to statement.) The traps of Amager chiefly "Klodsruiser".

Saltholm. *The southwest-side,* standing by stakes. 12, 9, 6, 5 R. Moreover they fish now and then with 10 boats, each with 10 shrimp-traps (according to the fishermen's statement).

Muusholm. *On the east-end of Nordøen.* 3, 6 R. *At the moorage.* 2 R. *At Sydvesthukken.* 6, 13, 3, 14, 7, 14, 3 R.

Egholm. *The east-side.* 3, 7, 21, 5 R. *The west-side.* 5, 15 R.

Agersø. *From the northwest-side to Vestlunden* no traps. *Vestlunden to Næbet.* 1, 3, 2, 6 R. *Næbet to Helleholm Lighthouse.* 7, 3, 9, 22, 24, 25, 2, 11, 29, 40, 23, 42, 6 R. *The beacon at Østerhoved Flak to the Harbour.* 40, 12, 12, 9, 5, 6, 5, 9, 13R. *The Harbour to south-east of Draget.* 1, 36, 26, 22, 9, 24, 23, 7, 6, 7, 1 traps.

Omø. *The southwest-side from the north.* 3, 6, 3 R. *The southeast-side from the middle to Skovbanken.* 10, 25, 9, 5, 3 R.

Møen. *At Møen Lighthouse.* 3 R. (as stated by the fishermen). *Klintholm Harbour.* 12 R. *At Hagen off Hjelm.* 4, 3, 3 R. *At Madses Klint.* 5, 3, 2, 3 R. *From Grønsunds Hage on Møen to Fanefjord.* 6 single, 3, 2, 3, 2, 3, 7, 2, 5, 3, 1 R.

Bogø. *At the southeast point.* 5 R. *At the westend, to near the Lighthouse.* 4, 1, 2, 1, 3, 2, 1, 3, 1, 1, 2, 2, 2, 5 single, 4 R.

Falster. *At the Forest north of Sortsø.* 1, 4, 2, 2, 2, 3 R. *From the Light house of Grønsund to Hestehoved.* 1, 2, 6 single, 2, 4 single, 3, 3, 4 R. *From Stubbehage to Hesnæs Harbour.* 7, 11, 1, 3, 3, 2, 8, 4, 5 R. *At Pumlénakke.* 4, 3, 2 R. *In Guldborgsund from Frisenfeld to Stavreby.* 7, 12, 12, 6, 12, 12, 8, all "Klods-ruser" (according to statement). *At Vennerslund.* 1, 1, 2 R.

Laaland. *At Guldborg Ferry* 2 traps are found. *In Rødby Fjord* there are many traps; but as the water is nearly freshwater, they have not been counted. With the exception of these there are, along the shores of Laaland, traps only at the west-end, beginning at Østerskov. *Under Østerskov.* 2, 4, 4, 3, 2 R. *in G.* *From Østerskov to Gottesgæbe.* 3, 2, 1, 1 R. *in G.* *From Gottesgæbe to Albuen.* 4 R. *in G.* and 1 R. 1, 1, 1, 4 R. *in G.* 7 R. 14 R. 6, 5, 2, 2, 2, 3, 3, 6, 5, 1, 2, 2, 2, 1, 6, 4, 3 R. *in G.* 1 R. *in G.* and 2 R. 12 R. *in G.* and 4 R. 3 R. *in G.* 6 R. *in G.* and 1 R. 5, 6 R. *in G.* *A little black house.* 7 R. *in G.* and 5 R. 8 R. *in G.* and 7 R. 7 R. *in G.* and 7 R. 7 R. *in G.* and 2 R. 3 R. *in G.* 10 R. *in G.* and 1 R. 9 R. *in G.* and 3 R. 4 R. *in G.* and 1 R. 5 R. *in G.* and 2 R. 5 R. *in G.* and 3 R. 4 R. *in G.* and 2 R. 2 R. *in G.* 4 R. *in G.* and 2 R. 3 R. *in G.* and 2 R. 1 R. *in G.* and 3 R. *On Hvidegrundslakket in Nakskovfjord.* 4 R. *At Vensholm.* Ca. 30 R. (according to the fishermen's statement).

In the above list I have endeavoured to give a fairly complete representation of the places in Denmark where eel-traps*) are set for the purpose of catching migratory eels (silver eels) in the autumn, as also of the number of traps at the various places.

The traps, as it is well known, are set either singly or in rows out from land or the neighbourhood of land (see *Drechsel*: *Vore Saltvandsfiskerier*, Pl. XIII.), but in other respects the way in which they are set varies very much. They may thus be placed by

- 1) "killocks" (a sort of wooden *anchors*) or *stones* only, without stakes ("Øresunds-ruser", "Klods-ruser").

*) Perhaps *eel-sets* or *eel stake-nets* would be a better translation of the Danish word "Aaleruser".

- 2) 2 *stakes*, one at the end of the trap and one at the end of the leader. The traps can fish there, either from one side, when the only existing arm lies in the continuation of the leader, or from two sides; in the latter case they have no arms, and the leader is generally continued into the trap to the second bow.

This method is mostly used on deeper water, to save stakes, which are sometimes c. 60 feet long, and, most frequently, it is used in the outmost part of the "Stader" only, when the latter go out on deep water, i. e. 6—9 fathoms. (For instance: the southwest part of Funen.)

- 3) 3 (or 4) *stakes*: stakes being placed by the arms. This is the method most commonly employed.
- 4) While the leader in the previous cases is loose, i. e. supported only above by the head-line at the end nearest to the shore, the leader; at places where there is not too much drifting sea-weed or such like, may be supported both above and below, by placing a stretching-stick at the end of it, and this stick is placed closely along the leader-stake (Horne-Land). This method forms the transition to the following, where the leader is not loose, not stoned below or furnished with floats above, as in all the preceding traps, but where
- 5) the *leader is fixed* and furnished with stretching-sticks for about every 8 feet. These sticks are fixed along the stakes, properly so called. The leader, in this way, becomes firmly stretched out from the bottom to near the surface of the water. This method is employed only on low water (c. 2 fathoms),—and is in use only near Fænø and up towards Trelldenæs. The traps are always very large, c. 8 feet in the fore-bow. Sometimes the inmost part of the leader, on quite low water, is not made of net-work but of "*Flager*", made of wattling or similar materials. This is seen also on low water in traps of other sorts. Where these traps are used in the narrows of the Little Belt, two are often placed immediately beside one another, so that they fish from the same side. The arrangement, with the firmly distended leader and the two side-traps, reminds you strongly then of a genuine old-fashioned "Aalegaard" *); only the leader is of net-work, and the bridge is missing. Indeed, they are called "Gaard" in the Little Belt. A form which still more approaches the old-fashioned "Aalegaard" is used, for instance, in Svendborgsund where
- 6) *the whole leader is made of "Flager"* (wattlework), and where there are often two traps beside one another at the outer end, which — as in an

*) Literally *eel-yard*.

old "Aalegaard" — are hauled out to the base of two stakes, or to two "killocks" (stones or anchors). Here the bridge across the water is only wanting to make them "Aalegaarde" of the old-fashioned form.

- 7) The *simplest* "*Aalegaarde*", where the whole leader is made of wattling, and which have a bridge of stakes that crosses the water horizontally, so that the traps ("Hammene", an old word for an eel-trap) may be tended from it, are to be seen, for instance, at Faaborg. They are used here close to land, in the surf, where net-work would not be strong enough, and where a jolly-boat would scarcely be able to live in all weathers. There are nearly always rows of traps, at stakes, in immediate continuation of the inner "Gaard".

For such an "Aalegaard" they do not use many more stakes than for one of the large eel-traps with a fixed leader, in the narrows of the Little Belt. Not so, however, by

- 8) the *large* "*Aalegaarde*" in *Jutland*, for instance at Sletterhage. As far as I can see, they use here, for an "Aalegaard" with a bridge, often as much and as heavy timber as for a whole house. The "Gaard" is higher, the bridge wider, and there are a great number of props to both sides of the vertical stakes of the "Gaard"; probably, on account of the heavy sea, but partly also, I think, in obedience to old custom. The dashing of the waves is scarcely heavier here than at Refsnæs, Horne-Land, and Helnæs in Funen, where the small "Aalegaarde" can stand pretty well.

A special form of the "Aalegaard" in Jutland is the so-called

- 9) "*Sænkealegaarde*" (one which must be sunk down), which is used at places where the waves would otherwise loosen the stakes and all the wood-work in the bottom, for instance near Sletterhage lighthouse.

As it is to be feared that the eel, on its migration along the shores, may go in between the shore and the traps with their leaders, the latter are placed as near land, as the eel is known to go*). On much exposed shores, with a heavy sea, where, consequently, the deeper water goes in close to the shore, the leader of the "Aalegaard" often stands on land to almost above the daily level of the water. If, on the other hand, there are low sand-banks off the shore, so that the dashing of the waves cannot throw the eel quite up to land, the leader is placed so near the shore only, as experience shows us that the eels go in sufficient numbers. This generally means, as near the shore as the vegetation reaches, especially the *zostera*.

*) It must be remembered that, in these seas, there is scarcely any difference between the high and the low water level.

The "*Aalestader*" — whether now they consist of rows of eel-traps only, or of eel-traps with a "Gaard" inside, or of an "Aalegaard" only — always go in then as far as the eel goes; unless the fisherman in question has no right to drive his stakes so near land, and therefore must remain at a respectful distance; or unless the "Stader" rest on a rising in the bottom of the sea, which does not go in to the shore. In both these cases the traps become *loose traps*, i. e. traps which do not reach land.

These traps, which do not reach land, or go in to the inner border of the *zostera*, are called "loose traps" in this list.

Though it seems difficult, according to the above, to draw any natural boundary-line between eel-traps, rows of eel-traps, and "Aalegaarde", I have in this list, from practical reasons, called everything that has a bridge "Aalegaard", everything else eel-trap. To avoid all misunderstanding it is emphasised here that, in this treatise, is understood by

"*Aalegaard*", everything that has a bridge, on which you may go or creep out, in order to tend the traps from it;

Eel-trap, everything else, though only the narrow lath across the water, which forms the bridge, is missing.

Loose traps are traps which do not go so close in to land as the *zostera*, or so close as it will pay to set traps.

An "*Aalestade*" is a connected series of traps, set anyway you like, no matter whether the inmost traps are to be tended from a bridge ("Aalegaard") or not. —

An "*Aalestade*" may thus consist as well of an "Aalegaard" (near the shore) as also of a series of traps in the continuation of this. Such seems to be the ordinary usage among the fishermen; they more rarely speak of an "Aalestade" as the place where traps or "Gaarde" may be set, but they speak of carrying the whole "Stade" to land, etc. — quite analogous to shrimp-trap "Stader", which have no such fixed places at all. —

The list has been made up, chiefly, by navigating the shores in the „Sallingsund“, at the times when the eel-fishery is carried on, and then from the vessel, in telescope, counting and mapping out all the traps. The bridge is here very conspicuous, among other things on account of the traps which are hauled up on it in daytime.

In the Sound, where the traps are placed by buoys, it has been impossible to count them from a vessel, but *Hans Christensen*, the fisherman, who is master of the "Sallingsund", has travelled all over the shores, and, partly through personal observation, partly by means of information obtained from

the fishermen, he has, as accurately as it could be done, counted them all and mapped them out.

Moreover, the *Inspector of the Fisheries within the Skaw* has given me information of the traps on part of the eastern shores of Jutland north of Djursland; the *Surveyor of the Fisheries of Jutland* has given me information of those in the Limfjord, and *Mr. Iversen, the Keeper of the Fisheries in Ringkjøbing Fjord*, of the traps here.

This counting and the drawing of these charts, which could be done only in the autumn, in the proper migration-time, has by no means been an easy task. It has often been prevented by bad weather, and it has not always been easy to go so near the traps in the "Sallingsund" that they could be counted with certainty, without running the risk of grounding the vessel. But after two years' work (1899 & 1900) the counting has now been completed: not so that we can state with absolute certainty the number of traps — this varies not a little from year to year at several places — but at any rate so that we get a good idea of where our silver-eel fisheries are carried on.

One source of errors I shall mention, however, which has the effect that the number of traps is not, and cannot be, exact in the list: the circumstance that, in the "Aalegaarde", particularly in the large ones in Jutland, several traps are often set side by side in the "Gaarde". These parallel traps, generally two I think, but sometimes 3 or 4, have almost always been counted as one trap, because their number cannot be seen from the sea. The whole undertaking would have been delayed by landing at these places, and I do not think, after all, that the general view suffers from this defect. Moreover, the situation of the traps is not effected by it; only their number becomes, at certain places, particularly in Jutland north of Aarhus, somewhat too small in the list.

The object of the whole counting of traps has been, partly 1) to get exact knowledge of where, in which direction, and in how large numbers, the silver eel migrates along our shores; partly 2) to examine whether the eel-trap fishery is really carried on at all the places, and on a sufficiently large scale, where we may suppose that it can be carried on.

The affixed General Chart has been constructed in the following way: *The 10-fathom curve* marks the boundary-line between the lower water and that which is deeper than 10 fathoms.

The green spots are the places where the vegetation is particularly rich, i. e. where *zostera* grows in greater quantities. They are, on the whole, identical with the dwelling-places of the yellow eel, and with the places where the eel-seine fishery is carried on.

The red spots mark the eel-trap fishery. On some very special charts the number of the traps was first marked down, very accurately, with a red dot for each; in this way an excellent view of their situation and numbers was obtained. As these charts were too large and expensive to be printed, we preferred, however, to draw the whole chart on a smaller scale, and let the red colour quite cover an area corresponding to that which, on the special charts, was filled up with the dots. By this arrangement the general view is much facilitated, but the exact number of the traps can be found now only in the list. The red spots on the chart therefore show, not only the *situation of the traps*, but *by the size of the spots also the number of the traps*. The red crosses mark eel-trap fisheries outside Denmark.

Although we cannot suppose, to be sure, that the same number of eels is fished in all eel-traps, and that exactly 10 times as many eels are caught at a place where there are 1000 eel-traps, as at a place where there are only 100 traps, I think we may be so bold as to presume that the greatest number of eels is caught at those places where, year after year, the greatest number of traps has been, and is still, standing, and that *the number of traps therefore, on the whole, is directly proportional to the number of the migratory eels*, particularly when a longer series of years is taken into consideration.

When we look at the chart*) from this point of view, we must, no doubt, be astonished that there are so few traps on the *south coast* of Møen, Falster, Laaland, Langeland, and Ærø, as also on the *northern coasts* of Funen and Zealand. It is indeed only in the *Sound*, in the *Great and the Little Belt*, and on the *eastern shores of Jutland, north of Hou*, that the great fisheries are found. If the eels did come in from the Baltic Sea, through our Belts, in numbers which were immensely great compared to those which had grown up in our seas, then we should have expected to find the great fisheries along our southern shores, and along the headlands in the Belts, nearest to the mid-fairway; but the chart shows no such thing. In accordance with such a theory of an immense emigration from the Baltic Sea, experiments have been made on a large scale, for instance at Albuen; but they have not succeeded. The dashing of the waves against the southern shores, it is true, is rather powerful, but not enough so, to prevent the fishery, if

*) By comparing the General Chart with the chart of our eel-fisheries in *C. F. Drechsel's "Oversigt over vore Saltvandsfiskerier, 1890"*, p. 48, we find essential differences, owing to the fact that several new great fisheries have grown up since then. See e. g. the western part of the Limfjord and West-Laaland. On the main, of course, the charts agree with one another, apart from the number of the traps, i. e. the size of the red spots.

there are many eels; for if there can be some few traps, as in point of fact there are, there might just as well be placed many, if they would only pay; there is room enough. No, to be sure, such huge numbers of eels do not come from the Baltic Sea, that our own stock is as nothing compared to them — as it is often told in works on fishery. Nevertheless, there comes a considerable quantity, but by far the greater part must be supposed to go round Falsterbo, and falls to the shores of Scania and the distance Elsinore—Nivaa, where one of our more important fisheries is situated.

If this be correct, it lies near to ask, where then the eels in our other seas come from. The chart gives the answer. It is considered to be generally known that the silver eels (the migratory eels) are only the yellow ones (the seine-eels) in grown-up state and in breeding-dress, and it may also be supposed, perhaps, to be a well known fact that a greater or smaller number of silver eels every year emigrates from every lake or bog in which eels are living, if the way out is not barred. A great number of silver eels, consequently, comes from our fresh waters, but most of them, certainly, are fished in the same fresh waters, by mills, by locks, in stream-lets, etc., and only a small part of them reaches the salt water.

But also in our salt or brackish little waters a multitude of eels become silver eels every autumn. An old fishery, based on this, is carried on in Kulhusrenden at Lynæs, and down at Frederikssund. Nobody will assert, that these silver eels come from the Baltic; at any rate, I dare say, nobody who has seen the eels, will assert it, for they are so small that an eel of 1 lb. is a rarity among them, and the average size at Frederikssund is scarcely $\frac{1}{4}$ — $\frac{1}{3}$ lb. They are nearly all of them males, therefore the small size. The place they come from, is the Roskildefjord where, likewise, the stock of eels (the yellow ones), chiefly consists of males, and where all the eels are very small. — Also in the Odensefjord there has of late years grown up a silver eel fishery with some 150 traps, and in the western part of the Limfjord there is now a great fishery (c. 1600) for eels that emigrate westwards through the Tyborøn canal; 20 years ago there was not one eel-trap here. In the eastern part of the Limfjord (from Løgstør eastwards) there has, on the other hand, for many years been a silver eel fishery; the eels go eastwards here, consequently to the Kattegat. The fishery in the Issefjord has c. 400 traps, that of the whole Limfjord c. 2600 traps, no small fisheries then, *though there is here certainly only the stock of the fjord.*

When we thus see fisheries with c. 2600 traps based only on the growth of our own eels in the Limfjord, the thought suggests itself that, for instance,

the great fisheries on the southwestern shores of Zealand (Holsteinborg and Bisserup) with c. 3800 traps, may also be based on our own eels, viz. on those which grow up in the large *zostera*-district (green on the chart) north of Laaland-Falster. It is the largest *zostera*-district in Denmark, the El Dorado of the seiners, and, in fact, the dwelling-place of a very large number of eels. Finally, I think, not a few eels are coming also this way from Bogestrømmen; the many traps on the south side of Knudshoved seem to point to this fact. That the eels are not caught in traps down in the very *zostera*-district at Laaland, will surprise nobody who knows about these things. For the silver eels cannot be caught in great numbers till they have run along the shore, and have been gathered together, as it were, in shoals, which then by the current and the sea are driven in near land. The shores at Knudshoved and Holsteinborg-Bisserup are just the first shores to which the west wind drives these emigrating eels. The eels which are not caught on these shores, go farther northwards, and give their contingent to Korsør and the two peninsulas at the Kallundborgfjord. The chart shows us that they meet only the south sides of these parts, never the north side. *When Refsnæs is passed, the eel has disappeared; where it goes is quite an unsolved mystery.* On Sejro, they say, no eel can be caught — but perhaps at Sjøelands Odde? As far as I know they have not tried it here.

I have mentioned that the west wind drives the eels in to the eastern points of the Great Belt; but an east wind, which is much rarer, can, when it comes, drive them the opposite way, i. e. to the northern part of Langeland. No doubt the eels which are caught here, come also in part from the southern shore of Laaland and the Nakskovfjord, and the water down at Nysted must deliver up its eels, I think, through the channels at Rødsand; from this reason the rather considerable fishery at Albuen.

The conditions on the shores of Funen, can be explained in a similar way. The large area of *Zostera* lies here between Langeland, Ærø, and Taasinge. Also here the seining for yellow eels is flourishing. When the eels emigrate from this place to the north, they go westward or eastward round the Island of Funen, and are stranded on the first shores exposed to the dashing of the waves, consequently, either on the eastern or western shores of Funen, especially at Dyreborg, Horne-Land, and Helnæs. This is just what the chart shows. South of Funen there is a remarkable local migration, as the southern waters from Faaborg are running eastwards through Svendborg Sund. All the traps, therefore, fish from the west in this sound; at Faaborg, on the other hand, they are arranged to fish from both sides,

as the eels at Faaborg are dashed straight against land by the waves, and may go, now northwards, now southwards. Farther up in the Little Belt, on the contrary, all traps fish from the south. Many eels of course migrate from the fjords of Sleswick through the Little Belt; but at Sleswick there is everywhere rather deep water, and from this reason there is not much *Zostera*. The conditions there are somewhat similar to our own on the shores of the Little Belt, particularly in the southern part of this sea. The yellow eels, here, are large, and the result is that the silver eels are large too; c. 20 generally go to make 16 Danish pounds (8 Kilo). In this respect they differ very much from the eels in the Great Belt, which, on an average, are much smaller. The different size of the eels in the two Belts indicates also, decidedly, that we have here, on the main, to do with local conditions. If there came from the Baltic a large collective migration of the eels, the size would scarcely vary in this manner; but now the size of the silver eels fits in pretty exactly with that of the yellow ones in our seas.

That the silver eels at one place are, on an average, larger than at another, depends, as I have formerly shown, on the respective sizes of the two sexes. Male silver eels are always much smaller than female silver eels. It is a fact that by far the greater number of the eels in the Little Belt are now females; but south of Zealand (especially in Bøgestrømmen) the males form the majority. This fact alone explains the above mentioned differences in the size of the silver eels in the two Belts.

We might imagine that the eels, when they had passed the narrows of the Little Belt, continued their migration northwards along the eastern shore of Jutland. But they scarcely follow this farther than Vejlefjord. As the chart shows, there comes here a considerable stop in the distribution of the traps, and, moreover, the eels which are caught north of Hou and at the southern peninsulas of Djursland, are not so large as the eels in the Little Belt. The eels up here come from Horsensfjord rather, and the large area of *Zostera* outside the same, as also from the other coves and fjords of Jutland. For here also a great number of eels are living, and here also the seining is flourishing.

What we find of eel-trap fishery north of Grenaa is but of little interest, and has no connection with our other seas. Along the whole northern shore of Djursland there are no traps at all. At the mouths of Mariager and Randers fjords, on the other hand, there is rather a considerable eel-fishery in the autumn; but it is almost exclusively *yellow eels* which are caught, and they are fished *from the north, going into the fjords*: they are, consequently,

going the opposite way. Something similar to this, is not unknown at other places, certainly, but it does not directly concern the migration of the silver eel. Not a few silver eels come out of the Limfjord, northward bound, but on the shores of the Cattegat there are but few traps. As far north as Hou and in Asaa Rende there are a few, and likewise south of Frederikshavn; but this fishery is altogether so insignificant that there is scarcely any reason to doubt that the eels are quite local; it is certainly not the migration of the eels from the Belts which is continued up here. As soon as Sletterhage, Refsnæs, and Elsinore are passed, the large multitudes of eels disappear.

While thus our eel-trap fisheries everywhere in Denmark must be supposed chiefly to be based on eels that grow up in our own seas, it cannot be denied that the conditions are somewhat different in the northern part of the Sound. It is a fact that a great number of eels migrate southwards along the eastern shores of Sweden, and turn off to the north at Skanør. (*R. Lundberg: Special Catalogue. Sweden. International Fisheries Exhibition. Bergen. 1898.*) These eels then, in point of fact, migrate from the Baltic to the Sound. Moreover, there is not in the Sound any larger area of *Zostera* from which the whole number of eels could come; for the shallows around the isles of Amager and Saltholm are partly too small, partly not so very rich in eels.

I shall mention here, particularly, that this counting of eel-traps in Denmark was commenced in the belief that it would show that by far the greater part of the silver eels which are caught in our seas came from the Baltic. Only little by little, and reluctantly, this view has been changed; for it is not only contrary to the generally accepted opinions, but it seems also immediately to lead to remarkable consequences. For, even if we accept this view and, on the strength of it, pretty well can explain the Danish conditions, it remains to explain how the eels in the whole of the immense Baltic Sea with its afflux from the immense lakes in Russia, Finland, Sweden, and Germany, can breed, when they cannot go into the sea through our Belts. For they must into the sea to breed, of that there is no doubt, particularly after the latest Italian investigations.

The answer to this is that, if the whole of the Baltic Sea were as rich in eels as the Danish waters, and had, consequently, as many times more eels as it is larger than our waters, i. e. 20 or 30 times as many, then the fisheries in the Sound must be much greater than they are. On the Danish side of the Sound there are no more traps than in the Limfjord alone, and

although the fishery on the Swedish side, perhaps, is somewhat greater it is not much. This does not point to such an overwhelming fishery in the Sound, as we might have expected. — Add to this, that we know for certain that *the Baltic Sea and its tributaries, on the whole, are not at all rich in eels*. According to *Lundberg* the eel-trap fishery on the Swedish shores is not carried on farther than a little north of Öland and quite sporadically at Stockholm; farther northward the eel becomes rarer.

Lundberg (loc. cit.) gives much good information of the Swedish fisheries, which are no doubt the greatest eel-fisheries in the Baltic. He has further informed me by letter that, as far as it is known, there are in Scania: in *Malmöhus Län* 2,500 eel-traps ("Hammer"),
in *Christianstad Län* 4,383 — (from 1883).

In the 2500, consequently, the whole of the Sound along the Swedish shore and most of the southern shore of Scania are included.

In *Blekinge* are 6,803 eel-traps (from 1899).

In *Öland* (west and north side) are..... 2,444 —

On the shore of *Calmar Län* as far as *Eastern*

Götaland are..... 1,239 —

From *Eastern Götaland* to *Arkö* are..... 1,122 —

Total... 18,491 eel-traps.

The produce was in 1899 in *Malmöhus Län*... 125,067 Kilogram 110,004 Kr.

— — — - 1899 in *Blekinge*..... 206,050 — 195,210 —

On this shore, which is longer than the distance from Gedser to Cape Skagen, we do not find so many traps then, as we have in Denmark, and the yield per trap seems to be about the same as that of the Danish traps.

In Finland, at many places, the eel is quite missing in rivers and lakes. A special eel-fishery is not found at all in Finland. Eels are caught only accidentally, together with other fish.

In Russia the eel is by no means common. Dr. *O. Grimm*, the Inspector of Fisheries in Russia, in his book on the Russian fisheries, mentions the eel among the useful fishes, but he gives no information at all about its economical value, as he has done about that of the *important* fishes. On the whole, they do not like the eel at all in Russia. Certainly, they do not object to eating it, but they do not like to have it in the rivers, because it destroys other fishes, which they value higher there. In all the rivers that fall into the Arctic Ocean, into the Black Sea, and the Caspian Sea, the eel is completely missing. The whole Danube-district in Europe has thus no eels, unless they are transplanted into it, and most likely they will not breed

there. — From well-known people on the shores of the Baltic I have tried to get information as to the numerousness of the eel at various places. At St. Petersburg and in the Gulf of Finland it does not seem to be numerous; in the Gulf of Riga it is found only on the shores of Ösel. In the river Düna scarcely any eels are found; but they are found in a few fresh-water lakes. In Esthonia there is "ein sehr grosser Aalfang" of 20—30,000 eels a year, consequently a fishery only about the size of that in the inner part of Koldingfjord, or the like. A very well-known export firm at Stettin informs me that, according to its experience, eel-traps are not used either in the Gulf of Riga or in the Gulf of Finland, and on the inner shores of the German part of the Baltic Sea only at Danzig and the Isle of Rügen. But it is well-known that eel-trap fishery is carried on along the shores of Sleswick and Holstein. At Bornholm eels are fished in traps, but the fishery is only a matter of some hundred kroner. — In the open Baltic Sea the water is too deep: the eel cannot thrive there. Thus it is only in the German Haffs, at the Isle of Rügen, in Sleswick, and in Sweden that the eel occurs in great numbers.

To judge from all these things, the Baltic is not by far so rich in eels, as we might have expected. That this is connected with the fact that it is difficult for the tender fry to reach in so far, from out the sea, is evident. While we can find every spring multitudes of the ascending small pellucid young eels on our shores, they seem to decrease in number as they are going into the Baltic, but at the same time to increase in size. I have thus letters before me from the Intendant of Fisheries at Stockholm, and the Inspector of Fisheries in Finland, informing me that the *smallest* eels they have found in North Sweden and in Finland are, respectively, 25—40 ctm. ($9\frac{1}{2}$ — $15\frac{1}{2}$ Danish inches) and 35—36 ctm. (13—14 inches) long. In there, as it seems, the tender fry ("elvers") is missing; I suppose, because it must migrate the long way from the salt sea.

Dr. Trybom has, in 1891, (Circular Nr. 1 des deutschen Fischerei-Vereins p. 30) mentioned a find of eels, between 8 and 13 ctm. long, in the northmost parts of the Baltic. But though I have mentioned this find as particularly interesting, in Report I of the Danish Biological Station, 1890, and shown that these eels must be supposed to be 1 year older than the elvers on our shores, and though the whole eel-question since 1890 has been eagerly discussed all over Europe, only few new finds of elvers from the inner parts of the Baltic have been made public, as far as I know. Even if the scientists had not found them, the boys would certainly have done so,

if the elvers were as common as they are with us; for the catching of elvers is a common and favourite sport among the boys, when they move about near our rivulets and brooks. *Lilljeborg* ("Sveriges och Norges Fiskar") is also of opinion that the elvers are not common in the inner Baltic Sea, though he thinks the few finds prove that the eel breeds in there. From many reasons I cannot at all agree with him in this.

We are not justified, after this, to expect any exceedingly great multitudes of eels from the Baltic, much the less so as the eel, where it is found, is eagerly pursued in every way in the densely populated countries where it particularly occurs. All this together is the reason why our fisheries in the Sound are not greater than they are, and why the stock of eels in our Belts mainly comes from the Danish waters. *It is evident, consequently, that Denmark with regard to the eel-fishery is a very rich and very fortunately situated country;* — rich, because so many eels are living in our seas, and fortunately situated, because the sandy shores and shallow waters give us a good opportunity of catching the eels, partly in seines and partly, during their migrations along the shores, in traps. It now rests to examine, whether the chart can give us any information with respect to my second object, to learn whether the eel-trap fishery is carried on at all the places, where we may suppose that it can indeed be profitably carried on.

The first thing I shall say then, is, that the ways in which the eel-trap fishery is carried on in the different parts, have proved to be so different, both with respect to the construction of the various apparatus, and to the manner in which they are placed in the water, that I cannot help thinking *the technics of the fishery* would be considerably advanced by an amalgamation of the experiences of the various fishermen, at many places where the eel-fishery is certainly carried on already, but where the fishermen are scarcely up to date with respect to modern improvements. I shall not decide whether this may be more easily done by letting *the fishermen travel from one place in the country to another*, which would meet with great difficulties as they must be at home so to speak at the exact hour to mind their traps, or *by arranging an exhibition on the shore*, where then fishing-apparatus of the various constructions were to be exhibited along the shore, in the water, in the same way as it is generally done on the shores in the various parts of the country. This might very well be arranged outside the fishing-season. The technical development has progressed steadily for a long time, particularly from the south to the north, but the movement has certainly not yet reached its termination.

Finally, the chart seems to show, and it becomes still more evident when we study the very fishing-grounds, that the *number of traps* is very small at certain places, particularly where the fishery on longer lines of coast belongs to one person, because only the very best grounds are used. I am here thinking, for instance, of the *south side of Asnæs*, belonging to the county of Lerchenborg, partly also of the shores of the *county of Wedellsborg*. Also the shore south of *Korsør* seems to be proportionally poorly supplied with traps. When we compare these shores to those of *Faaborg*, *Bisserup*, and *Reersø*, with their great numbers of traps, whose stakes are standing together so densely that they remind you of the trees in a forest, and where nevertheless the fishery leaves a good profit to every man, we should think that the fishery on the other shores might be made to yield more than they do. At *Faaborg* the grounds together with the right of fishing were sold in former days by the county of *Bræhmünde*, and it is now distributed on many hands. At *Reersø* the fishery is also carried on by many people, both peasants and fishermen. At *Bisserup* there are certainly long lines of coast belonging to one man (*Holsteinborg, Basnæs*), but here the fishery is seemingly carried on in a rational manner. —

As to the *extension of the fishing-grounds*, I shall here mention that, in the course of these ten years, a large district, *the whole of the western Limfjord* west of Løgstør, has been discovered. Since the breaking through of the Thyborøn Canal, the eel here goes westwards out of the fjord, and c. 1600 traps are employed in this fishery.

Also the fishery in the *Odensefjord* has grown up of late years (c. 140 traps).

A fishery at Frederikshavn harbour has proved to pay well. It was mainly discovered by the Biological Station while the latter was situated here, but it seems to develop slowly.

Other fisheries, the history of which I do not know, have surely also grown up in the various waters of late years, but I must consider it beyond doubt that further fishing may be carried on with profit both north of Funen, on the western shore of *Æbelø*, and on the west side of *Sjællands Odde*; for though it is in the nature of things that the northern shores as a rule are unfit for eel-trap fishery, because the eels go from the south to the north in our seas, a glance at the chart will show that these two points are so situated that western winds must drive the eels in on the shores there. At Sejro the eel-trap fishery is said to have been tried, but with no good result.

It must certainly also be possible to develop the fishery at *Samsø* considerably, particularly on the northern part of the western shores of the island. There are here almost exclusively "Aalegaarde"; but rows of traps outside the same will no doubt pay, where the depth of the water permits the fishermen to place them. A few traps have been placed here already, but only very lately. Also on the west side of the *peninsula of Æbeltoft* we might imagine it would pay better to employ "Aalestader"; we find here now only the old-fashioned "Aalegaarde".

All these places are exposed to *western winds*, which are predominant with us, and on the open shores the sea-wind is necessary for this fishery; therefore such places as *Aarhusbugt* and the whole shore *along Djursland*, are mentioned as secondary. There is no doubt however that, in good years with eastern winds, many eels will be caught here; not a few, we know, are caught already in "Gaarde" along *Djursland*.

As above mentioned, the number of traps which are found along the eastern shore of *Jutland*, from *Randers Fjord* northwards, is exceedingly small, when the traps in the fjords are not included; and then the greater part of the traps on the shores of the *Kattegat* fish yellow eels from the north. It seems, consequently, as if the great migration of eels from our Belts does not reach this shore. But, nevertheless, there are silver eels; and yellow eels too are living in not quite small numbers on the shores of the *Kattegat*, where, in certain years at any rate, *Zostera* is found on no small areas (see the chart). Might it not be possible to carry on a greater eel-trap fishery here, and might not, in years when eastern winds are predominant, the eels from the Belts go through *Læsø Channel*, so that a good eel-trap fishery might be carried on, both on the west side of the latter and on the *Læsø* side? Well, who knows? Perhaps it has been tried already without my knowledge. I should think, at any rate, that it would pay to establish a smaller fishery, on the east side of *Læsø*, for the eels that live in the *Zostera* south of this island.

Then there is *Cape Skagen*, this headland which we should think the eels must pass close by, if they go as far as into the German Sea. In former days they caught silver eels here, in seines, among the sand-banks. Of this there is an account by *Søren Abildgaard* in his "Beskrivelse over Kiøbstæden Skagen etc.", printed in "Oekonomiske Magasin", p. 357, tome V, 1761. He says that about Michaelmas time, they are fishing for eels, with little eel-seines, along the shores of *Cape Skagen*. The outmost arm is either drawn by a horse, on which a man is riding in the water, or it

is kept out from land by means of a pole, 32—34 feet long, while people on land draw the seine along. Strange to say, this way of fishing seems quite to have fallen into disuse nowadays; perhaps it ought to be tried again. The fishing, of course, must be carried on in the moonless nights, with a current from the south. It would, possibly, be very difficult to set the traps on these shores, but I should think almost that it would pay.

Finally, there is the *western shore of Jutland*. Most likely it will be almost impossible to make use of traps on the open shores; but some attempts have proved that there is a migration of eels. It is said that the eels run from the south to the north. The traps must be set in shelter of the sand-banks, in very favourable places, and there are not many such. Farther south, moreover, the tides impede this fishery on lower water. — In *Ringkjøbing Fjord* there has of late years grown up a considerable fishery which, according to the statement of Mr. *I. Iversen*, the Keeper of the Fisheries, has some 400—500 traps. — In *Nissum Fjord*, according to the statistics, the whole of the eel-fishery in 1898 was valued at c. 600 Kroner. It is thus without any greater importance.

It would seem strange to leave this matter, without mentioning the pecuniary value of the eel-trap fishery in Denmark. But, indeed, I should prefer not to enter upon this question, as it is not very accurately known how much we fish. Fishery statistics is in itself a difficult subject, but this question is the most difficult of all; for here there is most mysteriousness. As the fish that are caught, are often not landed in Denmark at all, but are sailed to Germany alive, the system of mysteriousness can be carried through pretty well. Something, however, oozes out now and then, but whether it be the naked truth, indeed, is not known. The official statistics, moreover, does not state the income from this fishery separately; it is summed up together with the eel-fishery with hooks and by spearing. Nevertheless, the average value of these fisheries for the years since 1890, according to the statistics, amounts to only c. 600,000 Kroner *for the whole country, excepting the Limfjord and Ringkjøbing Fjord*. As mentioned in the very statistics, this sum is evidently too small. In the *Limfjord*, where the number of traps has been constantly increasing during these years, the profit on the trap fishery alone, in 1890, is stated to be 9,845 Kroner. But since then it has risen pretty evenly to c. 100,000 Kroner, in 1898. For *Ringkjøbing Fjord* the total profit on the *whole eel-fishery* has risen from 11,267 Kr., in 1895, to more than 100,000 Kr., in 1900. Only a few years ago they have learnt there to turn the rich eel-fishery to profit in the right way.

According to the statistics, then, we do not get more than at most 6—800,000 Kr. a year from the eel-trap fishery, which gives a yearly average income on each trap, throughout the whole country, of c. 30 Kroner, a sum which seems to me, however, neither improbably high nor improbably low, and which perhaps is not so very far from the correct one. —

Résumé: In our *Fjords* the eel-trap fishery is based only on the eels which have grown up there. In the *Belts* the fishery is based chiefly on eels grown up in Danish and Sleswick-Holstein fjords and coves. *The Sound*, on the other hand, gets its eels chiefly from the Baltic Sea. The Baltic, however, is not by far so rich in eels, as it has generally been thought, and as we might suppose from its size. — In order to develop the *technics* of the eel-trap fishery, a co-operation between fishermen from various parts would be desirable.

This fishery can, in Denmark, be carried on with greater energy than it is now, and it will probably be possible to extend it to parts of the country *where, at present, it is not carried on at all.*

Note to the annexed chart. The green colour on the chart shows, in rough outlines, where the *Zostera* grows. In the Aalborgbugt the occurrence of *Zostera* is only slightly indicated, as closer investigations from recent years do not exist. The distribution here, as well as in several other places of the Cattegat, seems to vary not a little from one year to another.

The red crosses on the shores outside Denmark indicate the situation of greater eel-trap fisheries.

Smaller Communications. 1900.

On the Plaice in the Limfjord 1899 and 1900.

Owing to the importance attached to the transplantation of young plaice into the Limfjord, it is of interest to know the numerousness of this fry there, in the various years. Every time the *Sallingsund* has been in the Limfjord, some hauls with plaice-seines have been made in Nissum Bredning, in order to investigate this matter. Thus, on the 30. of June 1899, a haul was made near the *Tyborøn Canal* in the fjord. About 2800 plaice, between 7 and 10 inches in length, were caught in a plaice-seine, whose arms were c. 25 fathoms long. A haul with a seine with small meshes (1 square inch) showed that, besides the fry of the year, there were plaice of two other years, those $1\frac{1}{4}$ year old and those of 2 years and a quarter.

July 1., 1899, we took with a plaice-seine in *Kaas Bredning*, in one haul, c. 1200 plaice, 400 of which were over 10 inches in length; the largest was 13 inches.

In *Vilsund* we caught in one haul only 5 plaice, but 13 codfish.

In *Thisted Bredning* a haul was made which gave 36 plaice, only 8 of which were under 10 inches. The largest was $13\frac{1}{4}$ inches. There were none of the proper marks (2 holes) on these; but the fin-rays of several were damaged, so that we could see they had sailed in a fishing-boat with a well, and were transplanted fish.

April 25., 1900, and the following days, we made some hauls in *Nissum Bredning*, partly to count how many plaice there could be taken in the various places in this expansion of the fjord, partly to transplant some more plaice than usual into Thisted Bredning, for the purpose of investigating whether

they would grow as quickly as they used to, even though the number in this way was doubled. The Fishery Union of Thisted fetched the plaice in little fishing-smacks.

This then was a sort of combination of scientific investigation and practical development of the fishery at Thisted.

In the western part of Nissum Bredning

the	1.	haul	gave	1900	plaice.
—	2.	—	—	2700	—
—	3.	—	—	1900	—
—	4.	—	—	450	— (Took hold twice.)
—	5.	—	—	2200	—
—	6.	—	—	800	—
—	7.	—	(full of <i>Furcellaria</i> .)		
—	8.	—	gave	1900	plaice.
—	9.	—	—	1300	—
—	10.	—	—	2200	—
—	11.	—	—	2400	—
—	12.	—	—	1600	—

Farther into the Bredning, with Nørre Nissum Church in SW $\frac{1}{2}$ S, and at a distance of $4\frac{1}{2}$ miles, we took in the first haul 2100, in the second 3300, in the third 2560. Our seines soon proved to be too wide in the meshes to retain the smaller plaice. For there are here the fish of two years, those which are one year old and only $2-3\frac{1}{2}$ inches long, and the next from c. 4—8 (9) inches. Only very few fish were more than 10 inches, yet so many that the fishermen could fish for them. The fish counted in the above hauls, were chiefly fish over 4 inches. Those under one year of age were not caught, because they went through the meshes of the large seine which was used for the counting, and whose meshes were 3 inches wide. After a short bag of net-work, with smaller meshes, had been attached to the farther end of the seine, the number of fish which were caught was somewhat increased, so that the average number of plaice in 19 hauls with this was 2140 per haul, *chiefly fish 2 years old*, and the few larger ones.

I calculate that the seine, on an average, fishes over an area of c. 4 Tønder Land*) with 300 fathoms of line. There must, consequently have been *at least* 500 plaice on each Td. Land. As there are c. 19,000 Tdr. Land in Nissum Bredning outside the 3-fathom curve, there must have

*) 1 Tønde Land (Danish measure) = c. $1\frac{4}{11}$ acre.

been *at least* 9,500,000 fish, 2 years old; moreover the seine skips a considerable number.

As there had been placed nearly 200,000 fish in Thisted Bredning this year, i. e. about 16 per Tønde Land, I tried here to fish with the plaice-seine, and made in all 4 hauls, with a catch of 25, 15, 64, 94. Of these 7 only were from the preceding year (they were large), and 2 were marked with holes. We must therefore suppose them to have been transplanted this year — with exception of the seven — in all 191; but 16 Tdr. Land have been fished over in these four hauls, and they ought therefore to have given $16 \cdot 16 \text{ fish} = 256$, if the seine had taken them all. We see that c. $\frac{1}{3}$ of this number is missing, which third part then, I presume, has been skipped by the seine. Had the meshes in the seine been so much smaller, that the fish about one year had been caught also, the number of plaice in Nissum Bredning would have been counted, not at $9\frac{1}{2}$ millions as now, but at more than double that number.

In *Kaas Bredning* we made two hauls with a plaice-seine. Result: 715 and c. 600 plaice.

East of Venø we took in one haul 369 plaice, consequently nearly 100 per Td. Land. Here then, is no need of transplantation, at any rate not this year.

The next time the *Sallingsund* entered the Limfjord was in July 1900. The plaice at *Thisted* had grown well, and the fishermen got 10 Kroner per fourscore. But foreign fishermen had, early in the year, fished up a great number of the transplanted fish, as soon as these reached 10 inches to the tip of the caudal fin, a length which some of them have already at the time of transplantation. Before we get a law up there, forbidding the landing of plaice under, at least, 10 inches to the base of the caudal fin, this transplantation will never give any greater profit.

In *Kaas Bredning* we now took 850 plaice in one haul, more, consequently, than in the spring.

In *Nissum Bredning*, at the places where we caught c. 2000 in each haul in the spring, we now got only 360, 520, 420. Scarcely any was over 10 inches. On the sand at Thyborøn we found the fry of the year, $1-2\frac{1}{2}$ inches long. Here were, consequently, many fewer fish than in the spring, and they were by no means larger. This was after a long period of easterly gales, and it cannot, I think, serve as a standard with respect to the number. (See p. 29, June 1899).

July 30. and 31., 1900, we tried to fish east of *Venø*, but were much

impeded by a soft bottom filled up with vegetation. At length we found a clean place, and there the seine immediately gave 820 plaice, many more, consequently, than in the spring.

It seems, therefore, that there are every year immense quantities of fry in Nissum Bredning, but that only part of this fry goes deeper into the fjord. The remaining part stays during the summer in the Bredning, without growing very much; or, as it has been proved by labelling with bone buttons, it emigrates again to the German Sea. Nissum Bredning is like a huge pound-net, placed in the German Sea to fish for the fry of flatfish, and with the same peculiarity as the old-fashioned pound-net: if it is not tended pretty constantly, the fish go out of it again. The greatest trouble is taken to gather the spawn of useful fishes in the fresh water; then to fertilize and hatch it; then with great pains it is bred, and may now be sold to be placed in suitable waters. This is all right. But when we have in one part of the Limfjord a breeding-pond of more than 20,000 Tdr. Land, which annually *fills itself* with 1 and 2 years old fry, and in another part, at a suitable distance from it, with excellent communication by water, several square miles of large growing-ponds which are in need of fry, then it is sad to see that these conditions, on account of legislative difficulties, cannot be made useful to any extent worth mentioning; particularly as we do not know how long the conditions will remain as they are. If the Thyborøn Canal closes, then it is all over. With the present prices of plaice a well arranged transplantation would give a very large annual income in the Limfjord.

On the Sharks in Danish Seas.

It has long been a well-known fact that the *Picked Dogfish* (*Acanthias vulgaris*) at certain times of the year is exceedingly common on the western shores of Jutland. *H. Krøyer* has thus seen 11,000 of them landed at Agger in one day. On August 11., 1900, 700 hooks baited with worms and pieces of plaice were set, with the assistance of S. S. *Vestkysten* (Captain *Mortensen*), on 20 fathoms of water on the *Jydske Rev*, where the fishermen in February 1900, on the indication of Capt. Mortensen, had set hooks and caught codfish and halibut up to 100 lbs. a piece. The result, however, was now that the hook-line, after the lapse of one hour, was torn asunder in two places, so that we got only 200 hooks home, viz. those that were nearest the buoys. On these 200 there were 1 haddock, 1 grey gurnard, but 15 picked dogfish and 1 taper (*Galeus vulgaris*) of 38 lbs. My fishermen had

no doubt that it was the large sharks that had torn the hook-line asunder. There must have been a great number of sharks in this sea, and as a couple of hauls with otter-seine gave only, of fish, a few, small common dabs, I should suppose that nearly all other fishes had been driven away by them. This seemed to be an old story to the fishermen on the western shores; they even think that the shark extends its razzias as far as Nissum Bredning. So much is certain, that many of the plaice which immigrate into this sea in the spring, bear a mark in the shape of a horse-shoe, often bloody, as if a shark or another large fish had gaped over it, but let it go again.

The dogfish extend their razzias as far down as the Great Belt. We get them here on hooks, on deeper water, when we fish for cod. On the 29. April 1899, for instance, we set 300 hooks baited with herrings, on c. 17 fathoms of water, east of the bell-buoy on *Lillegrunden* (Fyens Hoved). The catch was 51 *picked dogfish*, 4 common dabs, 1 long rough dab, 5 rays (*R. radiata*), no codfish. The dogfish had codfish, whittings, sprats, and eel-pouts in their stomachs, but also great numbers of comb-bearers (*Pleurobrachia*). The dogfish have often many comb-bearers (*Pleurobrachia*) in their stomachs; but, of course, these are not their principal food.

A few dogfish were taken all the summer through, on deep water, in the northern part of the Great Belt, and the 8. August, S. E. of Sprogø, on 15—25 fathoms of water, we took on 400 hooks 21 codfish, 2 whittings, 16 common dabs, 1 grey gurnard, 5 rays, 10 picked dogfish. The 30. August we caught 6 dogfish as far down as Vengeance-Grunden, also on hooks. In September a few were taken at Hjælmen. As late as the 10. October, 1899, 7 dogfish were caught on 400 hooks east of Sprogø.

The dogfish then stayed here the whole season of 1899, from April till October, when the *Sallingsund* was laid up; and if we had particularly looked for them, we could certainly have caught many. It was, however, particularly codfish we were fishing for. —

In 1900 we also fished for codfish, partly at the same places as in 1899. On the 26. May we caught one picked dogfish east of Lillegrunden, where last year we had taken 51. Not till 21. August we again took 3 at Sprogø; but several of the codfish on the hooks had been bitten by dogfish, even so that sometimes the head only was left. 30. August we took in a plaice-seine with otters, east of Fyensshoved, 3 dogfish besides a number of flatfish. On the 11. of September we set 600 hooks on the usual cod fishing-ground, S. E. of Sprogø, and caught 49 picked dogfish, 69 codfish, 1 whiting, 11 common dabs, and 3 rays; now the sharks were common here also.

The water in the deep parts of the Great Belt was then completely changed from the spring by the flowing in of new water; it had a temperature of c. 13°, and a salinity of c. 28 ‰. In the month of July (the 13th) the temperature was only 7° at the bottom, but the salinity was 32 ‰. The codfish seemed now to be scarcer out here. 13. September the boats of Nyborg fished here for the first time greater quantities of herrings, in drift-nets. Many eider-ducks had come, and a few cormorants were seen at Sprogø. 5. November we again fished in the same place, with 600 hooks, but no dogfish were found. It is thus no uncommon thing to catch many dogfish in the Great Belt; but it seems, as if their occurrence is rather accidental, which presumably may be explained by the supposition that they are, to a great extent, migratory fish which scour the seas in shoals.

On the Value of the Common Starfish as Manure.

It has often been discussed, particularly with respect to the Limfjord, whether we should not try to destroy the starfish (*Asterias rubens*), because they are noxious animals. They live to a great extent on the same little white and red bivalves as the plaice, and waste, consequently, part of the produce of plaice-flesh in the fjord. The starfish are so exceedingly numerous up here that the question is of great importance for the economy of the fjord, and they breed freely. Many tons of them, certainly, are caught every year, particularly in seines and nets, but the fishermen throw them out again, as soon as possible, generally in a state of full vitality. If the starfish that are fished, were killed onboard, or carried to land, something would be gained already. As I supposed they might possibly be of value as manure, a quantity of them were sent to Professor *V. Stein's* laboratory to be analysed. He writes: "In the condition in which the starfish were when I received them, they contained:

	Water	58,91 p. c.	
	Organic substances*)	23,33 —	
Inorganic substances dissolvable in acid.	Lime..... 7,77 p. c. corresponding to:		
	Carbonate of lime.....	13,88 —	Dry sub- stances 41,09 p.c.
	Potash (K ₂ O).....	0,55 —	
	Phosphoric acid (P ₂ O ₅).....	0,55 —	
	Other dissolvable substances.....	2,65 —	
	Inorganic substances insoluble in acid....	0,13 —	
		100,00 p. c.	

*) Herein nitrogen 2,62 p. c.

Calculated according to the ordinary prices of the valuable substances, the starfish, in the condition in which they were when analysed, may be estimated at a value of 150 Ore per 100 lbs. As they contain so much water, they are not fit to be carried very far, but on the spot they may very well be used for the preparation of compost”.

I shall not here express any opinion as to the question, whether it will pay, directly, to land the starfish, only for the purpose of using them as manure; but even if the fishermen get nothing whatever for their trouble, it will certainly pay in the long run, to do something to destroy these animals, particularly in the Limfjord where they are so numerous.

On the Breeding-grounds of the Herring.

There is no doubt that the herring breeds at many places in our seas, and for many years attention has been paid to finding at least the more frequented of these places. Their spawn, certainly, is often seen on the pound-nets, but it may have come there in an unusual way, by the herrings having been chased about the net and having dropped their spawn. From this we can conclude only that the herring would probably have bred at a not very great distance from the net; but that is of little consequence.

Spawn of herrings, attached to the bottom or to the vegetation of the bottom, I have found in the following places: To a slight extent already in the spring of 1890 in the *Issefjord*, north of Ouro; in several different years at *Refsnæs-Revet*. Here, sometimes, there was much spawn, for instance 8. June 1899; it was particularly frequent on 4—5 fathoms; it went down to 7, but not to 10 fathoms; it was attached to algæ. 25. May 1900, we also found the spawn of herrings here. In May 1899 the spawn of herrings was found at *Knudshoved* (Nyborg), at some places on 5—9 fathoms of water, mostly where there was vegetation; so also at *Sprogø* on *Laminariæ*, and 28. May 1900 at *Vresen*. The 2. and 3. of May 1900 N and NE of Nørre Nisum Church in *Nisum Bredning*, in the Limfjord, we took in a plaice-seine, in several hauls, a quantity of *furcellaria* and dead *zostera*. The former was covered with the spawn of herrings. Here must be a large breeding-place, though they seldom, if ever, fish for plaice here. At *Stege* on the Isle of Moen, April 3.—4., 1894, the tank on board the Biological Station was found to be filled with quite tender fry of herrings, and the fishermen informed us that the herrings had been breeding a fortnight ago, in March consequently, in the neighbouring pound-nets. We must then be near a breeding-place here.

All the here mentioned breeding-grounds, found by us, evidently belonged to the race of herrings called spring-herrings, of which *Heincke* states that it breeds from March till June. He writes about this race in "Die Fische der Ostsee. IV Bericht d. Comm. z. wiss. Unters. d. deut. Meere. p. 137", that it "geht aber zum *Laichen* stets in brachische Buchten (Schlei, Dassower Binnensee) oder in Ausweitungen der Flussmündungen (Schwentine)." This is correct perhaps with respect to the Baltic Sea, but not with respect to the Great Belt and the Limfjord. In the latter, in Nissum Bredning, the water generally contains more than 3 p. c. salt, and can in no way therefore be called brackish; and the Great Belt is neither a bay nor the mouth of a river.

Once only have I found the spawn of *autumn-herrings* deposited on the bottom, viz. the 4th of August 1898, at *Vresen* (Nyborg), on *algæ* and *zostera*, between 4 and 8 fathoms of water, at the very same spot then where also the spring-herring breeds.

To get a survey of the breeding-grounds of the herring in Denmark, we must find many more of them. Perhaps they will come by and by of their own accord. Contrary to the pelagic (floating) eggs, these are far more difficult to point out. It is rather lucky finds and accidental circumstances that lead to the discovery of the breeding-grounds.

